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Activities of the Veterans Administration*

BRIG. GEN. FRANK T. HINES

VETERANS ADMINISTRATION, WASHINGTON, D. C.

IN discussing some phases of our activities which relate to the present war, first let me say that the Veterans Administration is now actively engaged in adjudicating claims, making awards and administering benefits for both veterans and dependents, based upon active service in the armed forces in this war. Not only are these things being accomplished daily, in increasing numbers, but they are being handled with despatch. The orderly manner in which our current operations are being conducted, contrasts most favorably with the situation which existed at a similar period in the last war. Then the new veterans' laws had been in effect only a short time.

The agencies charged with their administration were spread over several departments of the Government. Some of the agencies were then still in an early stage of development.

The great strides which have been possible in veterans' affairs since a quarter of a century ago, are due mainly to two things—the intelligent pioneering into new realms which our law-makers initiated at that time—and the vast amount of experience we have all gained —the Government, the Congress, and officials of the great veterans' groups—since the last war.

New undertakings, in order to succeed, must have a leader with vision; in this instance it was the Hon. Sam Rayburn of Texas. In 1917 was formulated and passed by the House the basic legislation which provided the foundation and structure for the many excellent laws we now administer for the benefit of veterans and dependents of the present war.

There are four main provisions to these present laws which may be roughly grouped as follows:

1. Life insurance, which is not compulsory—the premiums being deducted from the man's pay. This is issued at net cost in amounts up to $10,000, with the Government assuming the administrative cost and the cost of the extra war hazard.

2. Hospitalization and out-patient treatment for those requiring it after discharge from service.

3. Vocational rehabilitation to enable disabled veterans to overcome vocational handicaps caused by war service.

4. Money payments in the form of compensation or pension for those disabled more than 10 per cent by service.

Compensation or pension payments are also provided for dependents where loss of life results from service.

I should call to your attention here that all of the laws providing benefits for veterans and their dependents are now administered by one agency—the Veterans Administration—and that the head of this agency is responsible directly to the President of the United States.

*Presented at the Fourth International Assembly of the International College of Surgeons, New York, June, 1943.

Thus we have centralized authority and control over all veterans' activities, although most of the administrative functions have been decentralized to our one hundred-odd field offices in the various states. This has been done for the convenience of the veterans and their families, and to bring our relief facilities as close as possible to the veterans or their dependents which our agency has been created to serve.

NATIONAL SERVICE LIFE INSURANCE

The life insurance which we issue covering our armed forces is called National Service Life Insurance. It is superior, in my opinion, to the War Risk Insurance issued during the last war.

As it is designed primarily for the protection of a man's immediate family or dependents, the beneficiaries who may be named are restricted to wife, child, parent, brother and sister. The insurance is payable to the beneficiary or beneficiaries in monthly installments over a period of years as an annuity. That is a protection against loss which proved its worth in the last war. The limit a man can be insured for is $10,000, but he may take out several policies if he wishes, within this over-all limitation. The insurance may be applied for without medical examination during the first 120 days of service. After that period has expired he may still apply, but he must then pass a physical examination. This applies also to the WACS, SPARS, and women members of the Marine Corps.

We have already received about fifteen million applications for insurance totaling more than one hundred ten billion dollars. You will realize the magnitude of this vast sum when I remind you that it is equal to more than 80 per cent of all the commercial life insurance now outstanding in the whole United States.

HOSPITALIZATION

Our present hospitalization and medical problems have already been discussed with you by Dr. Griffith, our Medical Director, so I will touch briefly upon only one aspect of these—the steps being taken to meet the Government's probable requirements for hospital beds in the future.

This is a problem which President Roosevelt has placed in the hands of the Federal Board of Hospitalization. Among the members of the Board are the Surgeon-General of the Army, the Surgeon-General of the Navy, the Surgeon-General of the U. S. Public Health Service, the Commissioner of Indian Affairs, the Director, Bureau of Prisons and the Assistant Administrator of the Veterans Administration, in Charge of Medical and Domiciliary Care.

The Board has appointed a competent Technical Committee which makes studies and recommendations concerning the technical questions which arise.

This study includes determinations as to the types and magnitude of the patient loads and the rates at which they must be provided for, the extent of additional Federal hospital facilities which will be required, the most effective utilization of the entire hospital facilities of the Federal Government, and the extent to which non-Federal hospital facilities may be available.

Overbuilding will be avoided, and existing facilities, wherever possible, will be converted to temporary wartime utilization. Expanding hospital facilities of all Federal Agencies are being planned with a view to their complete post-war use.

The areas from which hospitals will draw patients are considered, as well as the types of patients to be hospitalized. The study includes consideration of how the proposed hospital or addition may

be tied in with existing federal hospitals in terms of the present and post-war hospitalization requirements, and use of existing Government reservations. Any possible or probable future expansions are also given consideration.

I think that all of our people may be confident that the future Government hospital problems will be met adequately, and that sufficient beds will be available as they become needed.

VOCATIONAL REHABILITATION

Much interest already exists in our Vocational Rehabilitation Program.

We have set up our Vocational Rehabilitation Service under the general direction of Assistant Administrator, Major O. W. Clark, with Mr. H. V. Stirling in active charge as Director of the Service. The operation of this service is carried on in 53 of our field stations, located in the District of Columbia and all of the states but one.

Vocational Rehabilitation Divisions are set up in these stations. Field Rating Boards are determining that these men have vocational handicaps. Vocational Advisers are considering education, experience and physical condition, in aiding and guiding in the election of courses of training to overcome the handicap of disability and to restore employability.

After personal consultation with each disabled man, and with due regard for his own preference, a new occupation is selected for him, and the place where he is to receive his training is agreed upon.

Educational institutions of recognized standing, and industrial establishments and farms are utilized in the training of these disabled veterans into employment.

It is our policy to train each person as near his home as may be possible.

The expense of training is borne by the Government, and during such course, the veteran's pension is increased to $80 a month for a single man; $90 with a wife or husband, and $5 additional for each child. The additional amount for dependent parents is $10 for each parent.

No course of training in excess of a period of four years can be approved, nor will any training be afforded beyond six years after the termination of the present war.

A number of conditions must be met in order to be eligible for training. These are: service in the armed forces after December 6, 1941, and during the present war; an honorable discharge; veteran must have a disability incurred in or aggravated by such service for which pension is payable; and he must be in need of vocational rehabilitation to overcome the handicap caused by his disability.

PENSIONS

Pensions for disability incurred in service are also paid, if the man is disabled 10 per cent or more. This is not incompatible with our Vocational Rehabilitation program. It actually supplements it.

Many men may become disabled to a pensionable degree, yet not suffer a vocational handicap which would justify a course of training. Others may not be feasible for training. Still others, after completing their training and embarking upon new occupations, will nevertheless still be disabled—for which disability they will be entitled to pension.

Pensions for disability run from $10 a month for a 10 per cent disability, to $100 a month for total disability, with payments as high as $250 a month for certain conditions.

Death benefits for the present war are $50 a month for widows, according to age, with additional amounts for children, up to as much as $100 a month total

for both. Payments also may be made to a dependent parent or parents—$45 per month for one, or $25 each if there are two.

A number of other benefits are administered, and many of these apply to persons who were not disabled in service, such as hospitalization for non-service connected disability, veteran's preference in Government employment, and burial benefits. However, the more important benefits which may result from service in the present war are the ones I have outlined for you.

SUMMARY

The Veterans Administration has been instrumental in procuring laws for the benefit of veterans of the present war as well as the last war. These may be divided into four groups: (1) non-compulsory life-insurance; (2) hospitalization and out-patient treatment for those men requiring it after discharge from service; (3) vocational rehabilitation; and (4) compensation or pensions for those with disability totaling more than 10 per cent.

RÉSUMÉ

Le Veteran's Administration a procuré les lois suivantes pour les vétérans de la guerre actuelle et pour ceux de la première guerre mondiale: (1) assurance non-obligatoire sur la vie; (2) traitement gratuit pour les malades à l'hôpital ou a domicile pour ceux dont l'état physique nécessite des soins médicaux après retour au foyer; (3) réhabilitation vocationelle; (4) compensation ou pension pour ceux dont l'incapacité excède 10 pour cent.

SUMARIO

La Administración de Veteranos ha hecho todo posible para obtener leyes favorables para los veteranos de la guerra actual como también para aquellos de la primera guerra mundial. Estas leyes pueden ser divididas en cuatro grupos:

1. Segura de vida sin compulsión.
2. Hospitalización y tratamiento ambulatorio para los hombres que lo necesitan después de completar el servicio militar.
3. Rehabilitación vocacional.
4. Compensación o pensión para aquellos con impedimento de más de 10 por ciento total.

Выводы

Управление по оказанию помощи Ветеранам способствовало выработке законов, касающихся помощи ветеранам настоящей и прошлой войны. Эти законы могут быть разделены на 4 основные группы: 1) добровольное страхование жизни; 2) госпитализация и лечение амбулаторных больных, нуждающихся в лечении после увольнения их из армии; 3) восстановление профессиональной трудоспособности и 4) компенсации и пенсии тем, которые потеряли трудоспособность больше чем на 10%.

MOTION PICTURE EXHIBIT

NINTH ANNUAL ASSEMBLY OF THE UNITED STATES CHAPTER OF THE INTERNATIONAL COLLEGE OF SURGEONS

Those desiring to present motion pictures, kindly communicate with the chairman of this committee, Dr. William F. Whelan, 2004 Walnut St., Philadelphia 3, Pa., giving full details as to subject, length of film, etc.

Anesthesia in War Surgery*

FRANCISCO GRAÑA, M.D., F.I.C.S. (Hon.)
LIMA, PERU

IN the course of the last three-quarters of a century two fundamental problems of surgery, different in their respective natures and purposes, but equal in importance, have gone through a parallel and simultaneous evolution, as far as diffusion and efficiency are concerned; the first was the fight against infections, the second the endeavor to obtain a proper solution for anesthesia in surgery. Since Pasteur and Lister, therapeutists have sought to discover powerful germicides innocuous to the cells and tissues, because while iodine, carbolic acid, mercury, hypoclorite of lime and the dyes in strong solutions are effective as germicides, they are destructive to the tissues which they try to protect from infection. And if the solutions are weak enough to respect the vitality of the tissues and their capacity for reproduction, they are unable to destroy the germs. What is more important, none of these agents or other similar ones could be employed without danger inside the body to fight visceral infections and septicemic processes.

In spite of Lister's discoveries, Domagh's introduction of the sulfonamides provided the solution of the problem sought by Ehrlich: *"Terapia sterilisans magna."*

Since Simpson and Morton, anesthetists have likewise been seeking agents able to eliminate pain easily and quickly for the length of time required for the operation and without harmful reactions during the administrative and postoperative course.

Chloroform, which for many years reigned as an autocrat in the operating theater, was banished little by little from hospitals, practically all over the world. Ether administered by the open mask and drop methods, and by means of many different machines, steadily gained favor in public hospitals and private clinics because of the decrease in mortality. For many years ether was used in its pure form; later on, it was mixed with nitrous oxide, carbonic acid and cyclopropane. With these new mixtures it was possible to mitigate, but not to entirely eliminate, the consequences of shock, secondary nausea and vomiting, the pulmonary complications, thrombosis and embolism.

While inhalation narcosis progressed to some degree of perfection, a new form of anesthesia was introduced with the employment of cocaine by Köller and synthetic products such as novocaine and suprarenine, the *"chemical tourniquet"* as Braun called the latter. Later on, Corning, Halstead, Reclus, Schleich, Crile, Cushing, Bier, Oberst, Braun, Allen, Sourdat and others developed the use of local and regional anesthesia and new technics, so that these sure and harmless methods may be used in more than 50 per cent of all operations. In this group we shall include spinal anesthesia, initiated by Tuffier, which, as we all know, has attained considerable development. Not long ago intravenous anesthesia with barbiturates was introduced; after considerable experience this

*Presented at the Fourth International Assembly of the International College of Surgeons, New York, June, 1943.

absolutely innocuous method proved to be the ideal one.

Distinct preferences for certain agents or methods of anesthesia are noticeable not only in various countries, but also in the surgical centers of each one of them. There still exist hospitals in which ether, pure or mixed with gas, is employed as a method of routine. In some, spinal anesthesia is used in the majority of cases; in others, local and regional anesthesia is considered the best method. In one of our hospitals the proportions are as follows:

	Per cent
Local and regional anesthesia	45
Spinal anesthesia	27
Intravenous anesthesia	21
Ether, gases, chlorethyl	8

During the First World War, war surgery was confined to military organizations; it was a military doctor's specialty. The casualties occurred only on battle-fields or in the cities attacked; the victims were nearly all soldiers. On the other hand, the arms used until then were bullets, shrapnel and bombs which produced wounds which it was possible to classify in groups more or less of the same kind.

In the present war, the multiple kinds of vulnerable agents, their extraordinary power and, above all, the aerial bombardments which demolish all kinds of buildings, causing great fires and casualties among the entire civilian population, both urban and rural, have brought in their trail a series of new and brutal traumatic lesions and have transformed completely the limits and nature of war surgery.

TYPES OF ANESTHESIA USED IN WAR SURGERY

In war surgery all methods of anesthesia must, of course, be employed, depending on place of occurrence, the kind of injury and the condition of the patient; but it may nevertheless be possible to establish some general principles.

In simple fractures the treatment consists of suitable traction of the bone ends, in order to bring them into correct and anatomic position, maintaining a perfect immobilization, by means of plaster casts alone or by inserting pins, which are imbedded in the plaster. These operations can be performed with novocaine solutions. A half per cent solution is no longer used; a 2 per cent solution is now recommended. In simple infiltration we use the 1 per cent solution (the cautious use of this solution is not dangerous and the resulting anesthesia perfect).

In the majority of hospitals local and regional anesthesia is not often used. Resection for varices, operations on the thorax, hernia operations, chronic appendicitis, rectal operations, gynecologic and urologic operations performed under general narcosis can be effectively performed under local anesthesia, thus avoiding the dangers and disabilities of a narcosis. In our opinion, the reason for this limited use of local and regional anesthesia is to be found in the ease of administration of general anesthesia and lack of knowledge of the exact technic necessary to effect good local and regional anesthesia. For this reason we recommend more training in this form of anesthesia, which requires thorough anatomic knowledge and much experience.

In compound fractures with severe bone lesions and wounds of the soft parts, when it is necessary to perform "débridement" in order to enlarge the wounds and eliminate cellular spaces, recesses and bone fragments, and where the use of the Orr-Trueta cast is contemplated, general anesthesia must be resorted to in order to avoid pain.

After the patient in shock has received the proper treatment, Pentothal is an

ideal anesthetic; it is easy to administer under good control and may be terminated at will, requiring the minimum of surgical equipment and having no after-effects. When the operation requires a long time, and the first gram of anesthetic, which has been dissolved in 10 cc. solution, is used up, anesthesia can be maintained by injection of another gram of a weaker solution (100 to 300 cc. of serum). As the basic fundamental principles in the treatment of fracture cases are the use of a minimum amount of time for the initial treatment after the accident and the anatomic replacement of the injured bones and soft parts by proper immobilization, the two forms of anesthesia are indicated, and can be administered in first aid posts or in evacuation hospitals.

As a matter of fact, anesthesia is nowadays first resorted to in the front lines. We know that every soldier carries with him a small quantity of sulfa drugs, as well as a small dose of morphine. Thus, when a man is wounded the physician or his assistant employs sulfa drugs locally and orally, and the dose of morphine is given intravenously. There are two reasons for advising this method: (1) because the required dose is usually very small and can be repeated; (2) because the effect is instantaneous.

Following these two preliminary treatments, the wounded man is sent to the Casualty Clearance Station, the evacuation hospital and later on the base hospital.

Injuries of the thorax and severe conditions due to pneumothorax, open or closed, cardiac tamponage, and wounds of the thoracic wall must be treated under local or regional anesthesia; in a few cases intravenous anesthesia is administered, since inhalation anesthesia here is contraindicated.

As far as injuries of the abdomen, the urinary tract or those involving the nervous system are concerned, the use of anesthesia in war surgery differs little from that employed in civil practice and in peace time. Therapeutic measures may be resorted to in base hospitals, where necessary means for the purpose are available.

In many cases of war surgery it may be possible to use spinal anesthesia. I believe there are no surgical centers in the world where this anesthesia is more extensively used than in the United States and Mexico. Many surgeons use spinal anesthesia for all kinds of operations, with the exception of those on the thorax, neck and head. This form of anesthesia has great merit when properly used and does not expose the patient to any difficulty either in the course of the operation or in the postoperative period. It is generally held that the cause of shock and the drop in blood pressure are due to hypoglycemia, resulting from the blocking of the glycogenic function of the liver and that of the suprarenal glands. As a matter of fact, the systematic use of glucose serum, judiciously administered at the same time as the spinal injection, and a small dose of cardiac stimulant and adrenalin, frequently prevent those dramatic accidents due to spinal anesthesia. Having tried all the cocaine derivatives, we concluded that the best and most effective one is pure novocaine dissolved in serum, combined with a small quantity of dextrose by the method of continuous administration.

While nothing new has been stated, there are many rules and principles known to all of us, of which it is well to be reminded, since they are either not followed or incorrectly executed.

SUMMARY

A history of the evolution of anesthesia during the past seventy-five years is given, the ideal having been attained

with the introduction of intravenous anesthesia using barbiturates.

In war surgery all types of anesthesia are necessary. Two per cent solution of pure novocaine is recommended in simple fractures, 1 per cent in simple infiltration. In compound fractures, Pentothal is an ideal anesthesia, 1 gm. in 10 cc. solution followed by a weaker solution if necessary (1 gm. to 100-300 cc. of serum). Sulfa drugs and morphine are carried for use in the front lines. Local or regional anesthesia must be used in thoracic injuries, pneumo-thorax, cardiac tamponage. Spinal anesthesia is extensively used in the United States and Mexico for all types of war surgery.

RÉSUMÉ

L'évolution de l'anesthésie durant les dernières soixante-quinze années est rélatée. L'idéal a été atteint par l'introduction de l'anesthésie intraveneuse par l'emploi des barbiturates. Dans la chirurgie de guerre, toutes les formes d'anesthésie sont nécessaires. L'auteur recommande une solution de 2 pour cent de novocaine dans les fractures simples, de 1 pour cent pour l'infiltration. Dans les fractures ouvertes, le pentothal est l'anesthétique de choix: 1 gm. dans 10 cc. de solution, suivi de solution plus faible si nécessaire (1 gm. dans 100-300 cc. de sérum). Les médicaments sulfa et la morphine sont accessibles dans les avant-postes. L'anesthésie locale ou régionale est indiquée dans les traumatismes du thorax dans le pneumothorax et pour la tamponnage cardiaque. L'anesthésie rachidienne est beaucoup employée aux Etats-Unis et au Mexique pour la chirurgie de guerre.

SUMARIO

El autor hace revista de la evolución de la anestesia en los setentaicinco años pasados, llegando al ideal con el uso de la anestesia intravenosa empleando los barbiturates.

En la Cirugía de Guerra es necesario escoger uno o más de todos los tipos o métodos acostumbrados e indicados. El uso de una solución de 2 por ciento novocaina pura se recomienda en fracturas simples; 1 por ciento para infiltración sencilla. En fracturas abiertas, el Pentotal es ideal, 1 gm. en 10 cc. solución, seguido por una solución más débil, si es necesario (1 gm. a 100 o 300 cc. de solución). Las drogas sulfas y morfina son utilizadas en las lineas frentes de combate. La anestesia local y regional y raquidea deberán ser empleadas en los daños torácicos, neumotorax y tamponagecardiáco.

La anestesia espinal se practica extensamente en los Estados Unidos y en Mexico en toda clase de Cirugía de Guerra.

Выводы

Дается описание истории эволуции анестезии за период последних 75 лет, причем прекрасные результаты были достигнуты с введением интравенозной анестезии с применением бабитуратов.

В военной хирургии имеют важное значение все методы анестезии. При простых переломах рекомендуется 2-х процентный раствор чистого новокаина, при простом инфильтрате 1 процент. При усложненных переломах найлучшей анестезией является Пентотал (Penthotal) 1 грм. на 100 к. с. раствора и, если необходимо, затем более слабый раствор (1 грм. на 100-300 к. с. сыворотки). На передовых позициях применяются сульфаты и морфий. При горловых ранениях, пневмотораксе, сердечных закупорках должна применяться местная или областная анестезия. В Соединенных Штатах и Мексике для всех видов военной хирургии чрезвычайно широко применяется спинномозговая анестезия.

Present Treatment of Wounds and Burns*

CAPTAIN REYNOLDS HAYDEN, MEDICAL CORPS, U. S. NAVY
DISTRICT MEDICAL OFFICER, THIRD NAVAL DISTRICT

THE mobile character and greatly increased aerial activity of the present war has necessitated considerable change in medical procedure in combat areas. While the first emergency treatment of casualties presents the same problems as heretofore—control of hemorrhage, treatment of shock and prevention of infection—wounds of the present war are frequently multiple, severe and extensive, predisposing to infection and accompanied by severe shock. Medical units in forward areas must now be mobile and prepared to do what was previously considered "hospital surgery" at a main dressing station near the firing line. Surgeons attached to these units must be qualified to do traumatic surgery of any part of the body.

British reports from North Africa state that two limiting factors, the shortage of water and the need to limit supplies, keep desert surgery to bare simplicity. The essentials of asepsis are masks and gloves, and these, with shorts for decency, are all that the desert surgeon wears for most operations. The gloves are scrubbed on the hands and worn until they give out. The operating room assistant handles instruments and towels with forceps but does not scrub up. The patient's clothes are removed only round the wound and scrubbing and shaving are also limited to its neighborhood. Only for an abdominal or head wound is the full ritual of two persons capped and gowned adopted.

*Presented at the Fourth International Assembly of the International College of Surgeons, New York City, June, 1943.

EFFECTS OF PROJECTILES

The effects of high velocity projectiles upon the body tissues are not generally appreciated by the civil surgeon. In the immediate vicinity of the explosion of an aerial bomb, the bomb fragments have a velocity of some 5000 feet per second. These fragments are irregular in shape and size and frequently cause multiple or great gaping wounds with extensive tissue destruction.

The modern high velocity rifle bullet produces a variety of wounds. Those of entrance and exit may be small and the wounds readily heal. If bone is struck, however, the bone fragments act as projectiles and the wound of exit is large or there is great destruction of the deeper tissue. Richocheting bullets and metal fragments cause the most severe and revolting wounds.

EMERGENCY TREATMENT

The majority of casualties need ½ gr. of morphine promptly. More than this amount is likely to increase the symptoms of shock and may depress the respiratory center. When relief of pain is urgent, an intravenous dose of ⅙ to ¼ gr., diluted to at least 1 cc. with sterile water and injected over a period of a

minute or more, will reduce pain almost immediately. Morphine should not be used in head injuries unless complicated by extensive injuries elsewhere. It should never be used routinely.

Our conception of wound infection has changed during the present war. We now know that many of the more virulent organisms are not introduced into a wound by the missile but are introduced when it is being dressed. Greatest danger of infection is from the fingers, nose or mouth of the person who first inspects and treats the open wound.

At the first dressing, hemorrhage is controlled, the wound grossly cleaned and powdered sulfonamide sprinkled or poured into the wound. A sterile occlusive dressing is then firmly applied. The severely wounded are given two grams of sulfadiazine internally immediately after injury, followed by one gram every six hours as indicated. First aid packets now contain a package of crystalline sulfanilamide and another of sulfadiazine tablets for this purpose.

We have found that gauze moistened with saline or azochloramid solution gives the best results as a wound dressing because free drainage is permitted. Dry dressings tend to trap exudate beneath an impervious layer of caked powder while vaseline gauze tends to dam back the exudates, the sulfonamides losing their potency in each case.

Naval experience has definitely shown the value of the sulfonamides locally in the prevention of wound infection. Crystalline sulfanilamide has been quite satisfactory for this purpose. Sulfathiazole has been unsatisfactory because it cakes, forms a plastic cast and prevents drainage. Microcrystalline sulfathiazole, however, is more satisfactory locally than sulfanilamide.

Recent investigations have indicated that the sodium salts of sulfadiazine or sulfathiazole, because of their much greater solubility, are more efficacious when used locally for prevention of wound infection than other sulfa preparations.

In deep wounds, a sulfonamide suspension is injected into the wound pocket.

No attempt should be made to remove metal fragments from wounds at the first dressing unless readily accessible. The incidence of cellulitis or severe infection is apparently not increased by even large metal fragments.

Except in superficial wounds, it is imperative that no wound closure be attempted at the first dressing. The great majority of wounds which have received primary suture at the first aid station become badly infected. Following local treatment, sutures may be placed, left long and tied after the third day if there is no infection or secondary closure may be done later when indicated. Unconscious patients should be transported prone rather than on their backs in order to permit falling forward of the tongue and escape of saliva.

Because of their importance, emergency treatment of wounds will be summarized by regions:

HEAD WOUNDS

The majority of penetrating wounds of the head, although not immediately fatal, will result in death unless the wounds are properly treated from the beginning. All wounds of the scalp should be considered as serious. Even without associated fracture, these wounds are dangerous because of possible infection. Final suture and closing of scalp wounds should only be done in a properly equipped operating room where associated skull fracture or brain injury can be properly treated if present. If the circumstances are such that the patient cannot be transported within a reasonable time to a place where com-

plete operating facilities are available, then as thorough a surface operation as possible may be done in the field dressing station. While this leads to primary healing of the scalp wound without treatment of the possibly co-existing skull fracture or brain injury, these can be safely treated later if the scalp wound has healed and there is less danger of infection than if the scalp wound is left open indefinitely.

Wounds of the face are an exception to the rule against primary suture. They are usually not deep, can be easily cleaned and may be sutured without tension. Because of the excellent blood supply, primary healing usually results. Suture is especially recommended for wounds of the mouth. These frequently give excellent results from primary wound suture. In case of wounds of the upper eyelid, in addition to suturing the wound itself, it is better to suture the margins of the upper and lower lids together with a few interrupted sutures to prevent lid contracture until the patient can be properly treated by a plastic surgeon. The technic is mechanical cleansing, free sprinkling or spraying with sulfonamide powder, suturing preferably with fine, alloy-steel wire, and application of a pressure dressing.

CHEST WOUNDS

These wounds permit air to rush in and out of the pleural cavity, cause marked shock and death and must be promptly closed if the patient is to live. They may be closed with a large pad of gauze from the first aid packet, though moist gauze is better. If neither of these is available, the wound must be quickly closed with anything obtainable, the man's shirt, an ordinary thread and needle, etc.

Cutaneous emphysema is frequently noted in areas near the thoracic wound where fine crepitus may be detected. This is comparatively unimportant as the air usually originates from outside the lung.

Emphysema in the region of the neck indicates that gas bubbles have penetrated into the mediastinum where it induces dyspnea, circulatory disturbances and early death unless relief is given. Puncture is of no avail in these cases and only an extensive incision in the neck will adequately relieve the condition.

The outlook is more favorable if the air has escaped from the lungs and gathered in the pleural area. In this case, tension needs to be watched for immediate treatment if necessary. Too much tension is characterized by intense dyspnea, tense auxillary respiratory muscles, and the patient seeks relief by throwing his arms about. Only a small opening, a small puncture, is required to relieve this condition. Permanent drainage may be obtained by leaving the puncture-needle in position for twelve to twenty-four hours or longer. Thoracotomy may later become necessary but is preferably not attempted in the field.

In treating chest wounds, care must be exercised not to induce an open pneumothorax by injuring the parietal pleura. Simply cleanse carefully, sprinkle with sulfonamide and apply a sterile dressing. Should pressure rise rapidly in a closed pneumothorax, air may be aspirated from the pleural cavity by simple puncture in the absence of a pneumothorax apparatus. Removal of foreign bodies should not be attempted until the patient reaches a hospital. Both British and American reports emphasize the necessity for conservative front line thoracic surgery.

An open pneumothorax should be converted to a closed pneumothorax at once. Difficulties arise when an open pneumothorax is first discovered upon change

of dressings if no preparations have been made to meet this possibility. A wounded man who is able to breathe adequately in a watertight, well adjusted bandage, may die during the change of dressing.

ABDOMINAL WOUNDS

Patients with abdominal wounds require early operation, or they will develop a fatal peritonitis. These cases, both before and after operation, stand travel worse than any other class of injury. They must be operated on at the nearest point to the firing line where an expert surgical team can be placed. In the field, freely sprinkle the wound with powdered sulfonamide and evacuate to hospital or adequately equipped dressing station as soon as possible. Too much time should not be wasted trying to overcome shock before evacuation. After operation, these patients must not be further transferred for at least four and often ten days, until they have established equilibrium. Earlier in the war, many of these patients were evacuated by air after a relatively simple operation and died in consequence. In so far as practicable, arrangement should be made for a certain number of beds at each forward medical center for the care of abdominal cases.

TREATMENT OF SHOCK

Shock is the number one factor common to all war casualties. Treatment should start before its onset. Waiting for the clinical picture to develop before instituting treatment invites disaster.

The best field preventive of shock is blood plasma. It should be given all seriously wounded patients as soon after injury as possible, certainly immediately after arrival at the first casualty station. Transfusions of plasma in this zone will do more to reduce mortality from shock than any other single factor. All members of the field medical units should thoroughly understand its administration. The minimum amount given is 500 cc. Some wounded require 1000-1500 cc. before they are evacuated to hospital.

Vasoconstrictive drugs and circulatory stimulants are of little use in treatment of shock. Recent reports on adrenal cortical extract by the National Research Council state that it has no discernible effect on traumatic or burn shock in man. Bandaging of limbs does no good unless required locally for wounds.

HOSPITAL TREATMENT OF WOUNDS

Wounds given emergency sulfonamide treatment are usually more or less filled with caked powder when received in the hospital. While they are not sterile and there may be some necrosis or sloughing, there is rarely any spreading infection or fever. It has been found inadvisable to try to remove this sulfonamide. The wound area should be thoroughly cleaned, the wound irrigated with normal saline solution, skin and fascia incised along anatomical planes to lay all parts of the wound open and allow any deep accumulation to more readily escape; loose and obviously devitalized tissue is rapidly cut away with scissors. No attempt is made at radical débridement. Using this method, the average surgeon can care for three patients in the time required for one thorough débridement; the patients lose less blood, require less anesthetic, travel better and their wounds are in as good condition upon arrival. Reports from the Pacific and African combat areas state that the local use of sulfonamides plus nonsuture of wounds at first dressing have made radical wound débridement unnecessary. Those treated conservatively may be closed later by secondary suture, whereas the others require later skin graft and plastic operations.

On the other hand, some recent reports from the Middle East and North African combat areas have stated that wounds packed with sulfanilamide did no better than those without it and that more radical débridement and prophylactic use of anti-gas serum is necessary to prevent gas gangrene. From what I saw of the efficacy of local use of sulfonamides in preventing wound infection at Pearl Harbor, I cannot agree that wounds do as well without as with sulfonamide locally. These reports do, however, emphasize recent warnings that the local use of sulfonamides is not a substitute for adequate surgery and that their use alone will not necessarily prevent gas gangrene or other infection developing in deep wounds. For example, wounds caused by fragments of aerial bombs often have a small wound of entrance and extensive damage beneath. These deep wounds must be thoroughly opened, débridement used as indicated, dusted with sulfonamide powder and left open for at least three days.

With this treatment, the wounds are relatively painless and become clean in quite a short time.

In connection with use of sulfonamides in wound treatment, it should be remembered that it is now a well recognized fact that the entire group of sulfonamide compounds, in occasional patients, may produce most serious and bizarre effects on the blood cells. These drugs, therefore, should not be continuously or extensively used with any one patient except under competent medical supervision. Nor should excessive amounts be used locally or intraperitoneally. This, however, does not affect their use in first aid for the wounded.

Specific wound treatment in hospitals will be summarized by anatomical regions:—

Head. If sulfonamide and sterile dressing were used in the emergency treatment of the wound, operation may be delayed as much as forty-eight hours after injury and the wound still treated as a fresh wound. The most important part of the operation is a thorough cleansing and débridement of the wound tract in the brain. This may contain hair, dirt, grass and bone fragments. Damaged brain tissue and blood clots are removed by suction and all foreign material carefully washed or picked from the wound. It is then gently irrigated with large quantities of sterile saline solution, all bleeding controlled, the wound tract filled with sulfanilamide powder and the external wound closed. Sulfanilamide is most effective for open wounds of the head. Symptoms of cerebral irritation, characterized by Jacksonian seizures, have followed the insertion of sulfathiazole and sulfadiazine in brain wounds. The missile should be removed if reasonably accessible but otherwise left alone.

In head wounds operated on more than forty-eight hours after injury, the wound tract should be cleaned and débridement done as just described, the entire wound filled up to the skin with powdered sulfanilamide and the tract loosely packed with sterile vaseline gauze or gauze strips surrounded by rubber tissue.

Chest. Wounds of the chest vary considerably. Through and through bullet wounds may cause practically no symptoms, the bullet passing through the chest and leaving only small wounds of entrance and exit. Small shell fragments may traverse the lung and lodge in the chest wall of the opposite side. Patients will shell fragments in the lung may spit blood for a day or two and have no other symptoms. Varying degrees of hemothorax or hemopneumothorax are frequent. These patients usually run a fever of 101° or 102° F., perhaps 104° F., but they rarely develop infection and should be treated conservatively even

though empyema may seem to be developing. Aspiration is not done except for respiratory embarrassment or for diagnostic purposes. In all our cases, the temperatures gradually fell to normal as the blood was absorbed, and no empyema developed.

In case the wound is large, it should be rapidly cleaned, débridement used as necessary, easily accessible foreign bodies removed and blood sucked from the pleural cavity if possible. Sulfonamide powder is then freely sprinkled or sprayed in the pleural cavity and the wound closed tightly.

Abdomen. Patients with abdominal wounds are usually badly shocked but time spent in resuscitation lessens their chances of survival. A pint of blood may be rapidly given but the patient should then be promptly taken to the operating room, with the drip still running if there seems the slightest chance that he will survive the operation. If these is doubt of intra-abdominal injury, it is better to do an exploratory laparotomy than to wait until the diagnosis is certain. When there is doubt as to whether the abdomen has been penetrated, it is safer to make a small incision above the pubis and pass a swab into the pelvis than to wait for physical signs of peritonitis. A conscientious effort must be made to repair these wounds as recovery often occurs in an apparently hopeless case.

Recent reports from combat areas emphasize the following points in surgery of abdominal wounds:

(1) A straight through incision is better than a rectus retracting one; it is quicker and heals better.

(2) The serious damage done by tiny pieces of metal penetrating the abdomen have emphasized the necessity of careful study of every abdominal wound no matter how insignificant it may seem. Examine the abdominal viscera systematically and thoroughly regardless of the location of the external wound.

(3) Resection should not be done unless the blood supply is inadequate.

(4) Patients with perforation of the large gut do not do as well as those having perforations of the stomach and small intestine because of complicating wound infection or fistula formation. It is probably better not to close the skin and subcutaneous tissues in these cases.

(5) The large intestine must be exteriorized and drained after any injury, however trivial. If the injured part is mobile, it should be resected and the ends brought to the surface as a double-barreled colostomy. If it is fixed, the injury should be repaired and a proximal colostomy done. Any injury of the rectum, especially an extra-peritoneal one, demands a proximal colostomy. This principle of exteriorization is one of the most important advances in the surgery of this war. In the last war, the death rate in injuries of the colon was about 70 per cent and in those of the rectum about 90 per cent. It is now about 50 per cent.

(6) Except in relatively clean cases, a small tube (No. 10 catheter) should be inserted to the point of maximum soiling and brought out through the incision. At the end of the operation, a suspension of 10 gm. of sulfadiazine in 50 cc. of saline is injected slowly down the tube, which is then tied across and tucked in the dressings. If the progress of the case seems to demand it, more sulfadiazine is put down on one or two subsequent occasions and the tube finally pulled out. When this is not done, scatter 8 to 10 gm. of powdered sulfonamide through the abdominal cavity at the end of operation.

(7) All patients with injury of the intestinal tract should be nursed afterwards in the Fowler position, with continuous gastric suction and continuous intravenous fluids.

Extremities. Wounds of the extremities constitute more than two-thirds of hospital admissions of war casualties. Metal fragments in the tissues is perhaps the most frequent surgical condition encountered. These fragments may number hundreds. Most of them give no trouble and should be left alone unless readily accessible, being removed only when they lie in joints or cause symptoms. It is sometimes necessary to remove them for psychological reasons. Wounds of joints do not do as well as wounds of the soft tissues. With them, as little surgery as possible should be done. A sulfonamide suspension should be injected in the wound and a cast applied.

Secondary hemorrhage is a constant danger in battle casualties. Metal fragments which produce relatively small wounds may partially sever arteries and cause large pulsating hematomas with constant danger of massive hemorrhage. The only safe way of treating a pulsating hematoma is by ligation of the involved artery above and below the injury and division of the vessel. The accompanying vein is also usually ligated. The collateral circulation is good, and complications do not occur following the double ligation. Attempt at arterial suture is not recommended. The sac is not excised but scraped with gauze, washed clean, sprayed with sulfonamide powder and then obliterated with a few interrupted sutures.

Fractures are usually compound. These are treated the same as wounds of the soft tissues and the limb put up in plaster if available, traction being incorporated if necessary.

The sulfanilamide-Orr-Trueta plaster cast treatment for extensive wounds of the extremities, with or without associated fracture, was used for all such wounds at Pearl Harbor and the excellent results then obtained have been confirmed in other combat areas. Plaster immobilization of extremities after severe wounds with or without fracture very definitely relieves pain and promotes healing. With this treatment, these patients can be transported long distances in comparative comfort, without change of dressings, while their wounds improve instead of becoming worse.

In applying this treatment, the wound is first treated as has been described. It is preferable for the layer of gauze dressing next the surface of the wound to be treated with vaseline or other lubricant. Then, if the blood supply of the limb is adequate, an accurately fitting plaster cast is applied, padding being placed only over bony prominences. No window is left over the wound as this promotes herniation of tissue. Skeletal traction may be incorporated if necessary. In the absence of complications, which are rare if the wound has been properly handled, the cast is preferably not removed for three weeks after application even though a terrific odor develops. This frequently occurs with open wounds but is due to discharging wound secretion beneath the cast and is not a sign of serious infection. Every war wound, however, needs to be examined and checked at the end of three weeks.

Patients with infection who are dressed frequently with consequent movement of the affected part do not do as well as those with whom the dirty dressings are left in place in the plaster. Frequent treatments, while occasionally required, cause unnecessary discomfort to the patient and the severity of the infection is increased. Plaster cast with infrequent dressings gives better results than hot soaks or other forms of frequent local treatment.

Recently, the Roger Anderson and Stader Fixation and Reduction Splints

have been found of great value for closed fractures.

The war has produced a considerable increase in fractures of the os calcis among naval personnel. Most of these casualties are now the result of the explosion of torpedoes or bombs below decks, this causing a sudden and forcible buckling upward of the ship's deck on which the man is standing. These fractures are frequently bilateral, as the man's weight is usually rather evenly distributed on both feet at the time of impact. The os calcis of one foot, however, may be more comminuted or compressed than the other.

Amputation. Patients may be received who have had a traumatic amputation or in whom the bone had been so severely damaged that immediate amputation is necessary. In selected cases where the patient is in good condition and adequate operative facilities are available, amputation with flap and primary suture is perhaps justified. The vast majority of such patients however are received under adverse circumstances. In them, a guillotine type of operation is usually advisable, all structures being cut across at the same level and the wound treated as any other large open wound. Later, attempt must be made to cover the bone end with soft parts or re-amputation done if necessary.

Skin grafts. Use of sulfonamides alone does not necessarily clean up a granulating wound surface for skin graft. Reports from the southwest Pacific state that the best results are obtained by sprinkling the wound with powdered sulfanilamide, covering this with gauze saturated with 1-500 solution of azochloramid in glyceril triacetate, covering this with gauze dressings saturated with normal saline solution and bandaging with an elastic pressure bandage. The dressing is kept moist with saline solution injected into the dressing through catheters. Wounded extremities should be elevated. This dressing is changed once a day. After forty-eight hours, the granulating surface is usually clean, firm and red. Third degree burns should be grafted as soon as they are uninfected, usually four to six weeks after injury. Paper-thin Thiersch or split-thickness grafts are superior to pinch grafts, healing being more rapid and complete and end-results better.

Anesthesia. Spinal anesthesia is poorly tolerated by severely wounded patients. Local anesthesia may be employed if adequate for the occasion. Intravenous anesthesia is chiefly used for short procedures or to supplement local anesthesia. It is usually preferable in chest wounds but patients with abdominal wounds do not take it well. Pentothal has been quite satisfactory. The majority of our patients in the field are given open drop ether unless an expert anesthetist is available. This is suitable for all casualties except those having chest wounds and can be successfully given by comparatively inexperienced anesthetists.

Gas gangrene has been infrequent in the present war. Use of the sulfa drugs and leaving the wound open at time of first dressing has been considered chiefly responsible for this decrease, though the fact that but little fighting has occurred in well-cultivated agricultural areas since our entry in the war undoubtedly has some bearing.

Early diagnosis is extremely important and is based on the following three early symptoms occurring twenty-four hours or more after injury:—

1. Watery, brown discharge.
2. Brawny discoloration about the wound edges.
3. Typical "dead rat" or garlic-like odor—always present.

A wound showing these three early symptoms must be immediately and

widely opened without waiting for laboratory report. It must be radically treated by débridement, freely sprinkled with sulfonamide powder and left open. Anti-gas serum should also be used, the first dose three times the ordinary dose; then every four to eight hours as indicated.

BURNS

Burns have been one of the most serious types of wounds during the present war and are much more common than in the first World War. Under conditions of modern warfare, they comprise some 60 per cent of the casualties.

The most important and immediately imperative treatment of burns is to allay pain and combat shock. Morphine and blood plasma are the prime factors in treatment. Local treatment may be applied simultaneously or it may wait. Plasma has been almost a specific in these cases.

The amount of plasma to be given of course varies with the condition of shock, area of burn, etc. As with wounds, at least 500 cc. should be given severely burned patients as soon as possible. The worst cases need more. Plasma must be given rapidly, 500 cc. in five minutes, to the patient in critical condition; it must not be allowed to flow drop by drop. Syringe injection may be used. A good practical rule for twenty-four-hour administration of plasma at hospital or in the field is that used by the Navy:

1. 100 cc. of plasma for every 1 per cent of body surface burned, up to 4 or 5 litres. The palmar surface of one hand represents approximately 1 per cent of total body surface; the chest and abdomen about 20 per cent.
2. Always give in divided doses.
3. If hematocrit determination can be done, give 100 cc. of plasma for each point above 50 per cent cells.

Following plasma, normal saline solution with 5-10 per cent glucose or 1.8 per cent sodium lactate solution may be given intravenously or orally, if necessary for fluid intake, but should not exceed the volume of plasma given in any one twenty-four hours except when there is severe hemoconcentration, hematocrit about 70 per cent cells. The sodium lactate solution should be given orally if the patient can take liquids.

Because of the condition of the skin, edema, etc., it may be extremely difficult to find a vein for plasma injection. At Pearl Harbor, it was necessary to use veins anywhere on the body for this purpose. The femoral vein is nearly always available and can be easily reached by introducing the needle at right angles to the skin 1½ in. below the midpoint of Poupart's ligament and medial to the palpable pulsating femoral artery.

A point not generally appreciated is that, in emergency due to absence of available peripheral veins, intravenous medication of blood plasma or citrated whole blood can be administered through the corpus cavernosum of the penis. In occasional cases, this could easily be a life saving procedure. Slightly more pressure is needed than for ordinary intravenous infusions but the rate of flow may be as rapid there as elsewhere. This method is not recommended for other solutions because of the risk of chronic cavernositis.

Human serum albumen may be used in emergency treatment in place of plasma. While the indications for its use are the same, it is not a substitute for plasma. While early administration will prevent the fall of blood pressure associated with decreased blood volume in shock, the value of serum albumen chiefly exists in certain military situations where storage or transportation space is at a minimum and its use in these situations should be mainly as an emergency measure. Since it is extremely hypertonic and draws

upon tissue fluid to increase the blood volume, considerably greater clinical judgment is required for its use than for the use of plasma. The written precautions included in every package of serum albumen should be constantly borne in mind. Dehydrated patients must receive adequate fluids parenterally. Serum albumen is contraindicated in cardiac degeneration.

Local treatment of burns continues in a state of flux. Unfortunately, no standard local treatment can be recommended and the individual physician must be guided by his own experience, judgment or preference and the remedies available.

Burned areas covered with heavy fuel oil may be cleaned by gently wiping them with absorbent cotton soaked in a purified mineral oil such as Nujol. This leaves a thin, oily film which is more readily removed. Several detergents readily obtainable commercially are also excellent for this purpose. These are Drene, Dreft and Orvus. They are all used in 5 per cent solution and remove practically all oil.

Burns have recently been successfully treated with double strength, normal saline solution locally or in a tub. Pendleton's paraffin spray method is still being successfully used.

Prepared thin therapeutic membranes or films in which various chemotherapeutic agents were incorporated have been highly recommended during the past year. These contain 10 to 15 per cent sulfanilamide, buffer, and with or without azochloramid. They have not entirely prevented infection however.

Fox has very successfully used an ointment containing 5 per cent tannic acid and 3 per cent sodium sulfadiazine in an anhydrous base as first treatment for burns. This produces a rapid but light tanning and a soft, pliable but tough eschar which moves freely over underlying tissues. There is prompt relief from pain while edema and oozing from the burn is definitely reduced. Infection is well controlled. This worked very well in the case of one patient whose extensive burns were grossly contaminated.

The Subcommittee on Burns of the National Research Council has condemned the use of tannic acid in any form for the first aid treatment of burns, and has discredited its use for the definitive treatment of third degree burns because the eschar tends to lock in infections, to devitalize tissue and to preclude the use of any other form of treatment. Serious toxic reactions, principally liver, have been reported where delayed or incomplete tanning permitted absorption of much tannic acid.

At Pearl Harbor, we used powdered sulfanilamide, 0.8 gm. in 100 cc. of mineral oil on fresh burns and powdered sulfanilamide or powdered sulfadiazine covered with compresses wet with normal saline or aqueous solution of azochloramid, on infected burns with good results. After the raid of December 7, 1941, we used the sulfadiazine in triethanolamine spray on a few cases. While satisfactory, we felt that the time and individual attention required precluded its use when any great number of severely burned patients are to be treated.

Recent reports from the Pacific combat areas state that burns were satisfactorily treated by applying dressings of fine mesh gauze impregnated with 6 per cent sulfanilamide in equal parts of cold cream and lanolin. Several layers of sterile gauze are applied over this, followed by cotton elastic compression bandages. Best results with infected burns were obtained from wet dressings of 2 per cent acetic acid.

Recently, the sodium salts of sulfathiazole and sulfadiazine have been successfully used by Fox and Tamarind

in the secondary local treatment of extensive second and third degree burns, commencing about one week after injury. Fine mesh gauze impregnated with a 10 per cent suspension of sodium sulfathiazole in petrolatum is applied to burned surfaces and changed every two or three days as indicated. The granulating surfaces gradually presented a normal appearance and several patients were successfully skin grafted about six weeks after injury, using paper-thin Thiersch grafts. The wound surface is freely sprinkled with powdered sodium sulfadiazine immediately before application of grafts. The great advantage of this method is that the granulating surface is surgically clean and ready to receive grafts, while these grafts can be easily cut by average assistants, may be rapidly applied and the donor surface readily heals so that it may be used again soon. About 98 per cent of these grafts took.

The National Research Council, however, has now pronounced against the local use of the sulfa drugs on burns, stating that they are of no value and appear to increase infection rate. They also state that aquaphor bases have been found to be an undesirable type of application.

Largely based on a study of the clinical material afforded by burned patients at the recent Cocoanut Grove fire in Boston, the National Research Council now recommends simple boric ointment or vaseline dressings with fine mesh sterile gauze and a smooth, even compression bandage as local treatment for burns. Stockinette or some form of elastic bandage is more effective than a roller bandage. This is covered with a thick layer of gauze, absorbent cotton, cotton waste or cellulose. The Council has re-emphasized the imperative need of plasma, followed by whole blood in the stage of anemia. Sulfanilamide or sulfadiazine by mouth or intravenously has also been re-emphasized, together with adequate fluid intake to protect the kidneys.

A point specially emphasized is the critical judgment required in the administration of morphine in cases presenting symptoms of anoxia, hot fume lung injuries especially. Under these circumstances, it is considered that the dose of morphine should not exceed ¼ gr.

The chief change in this treatment from the post-Pearl Harbor treatment is the discard of tannic acid and the sulfonamides for surface treatment. While the tannic acid treatment had been looked upon with increasing disfavor in both Great Britain and the United States for some time, local use of sulfonamides seems to have been dropped chiefly because they had apparently failed in their bactericidal effects. From reports I have read and what I have seen of the results obtained by Fox and Tamarind using the sodium salts of sulfadiazine and sulfathiazole in the local treatment of burns, however, I feel that the apparent failure of sulfonamides in this respect was due to their improper use, or use of unsuitable preparations, rather than inherent failure of the drugs themselves.

It is quite obvious that the ideal local treatment for extensive burns has yet to be found and I hope for early and further directives on this subject.*

SUMMARY

In the discussion of the treatment of wounds and burns, the effects of high velocity projectiles upon body tissues are stressed. Use of sodium salts of sulfadiazine or sulfathiazole is recommended to prevent infection.

*"The opinions or assertions contained in this article are the private ones of the writer and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large."

It is pointed out that wounds should not be closed at the first dressing, the exception being wounds of the face, where primary suture should be done. Emergency and hospital treatment of wounds of the head, chest, abdomen and extremities are thoroughly discussed.

The author emphasizes that use of tannic acid and local application of sulfa drugs in burns is now condemned by the Subcommittee on Burns of the National Research Council.

RÉSUMÉ

L'auteur discute le traitement des plaies et des brûlures dues à des projectiles de haute vélocité. L'emploi des sels de sodium de sulfadiazine ou de sulfathiazole est préconisé afin d'empêcher l'infection.

Les plaies de la figure exceptées, ces blessures ne seront pas suturées au premier pansement. Le traitement d'urgence et le traitement hospitalier des plaies de la tête, de la poitrine, de l'abdomen et des extremités est discuté minutieusement.

L'auteur déclare avec emphase que l'emploi de l'acidotannique et l'application locale des médicaments sulfa est condamné par le comité sur les brûlures du National Research Council.

SUMARIO

En la discusión del tratamiento de heridas y quemaduras, el efecto de la gran velocidad de los proyectiles en los tejidos es acentuado especialmente. El uso de las sales de soda, de sulfadiazina o de sulfatiazola son recomendadas para evitar infección.

Se advierte que las heridas no deben ser cerradas o suturadas en la primera atención y auxilio, con excepción de las heridas de la cara, en las que las suturas primarias deben ser practicadas. Emergencias y tratamiento en hospital de heridas de la cabeza, pecho, abdomen y extremidades son discutidas en extenso.

El autor llama la atención a que el uso de acido tánico y la aplicación local de las sulfas en quemaduras es desaprobado por el Sub-Comité de Quemaduras del Consejo Nacional de Investigación.

Выводы

При лечении ран и ожогов особое внимание уделяется действию снарядов большой скорости на ткани. Для предупреждения инфекции рекомендуется применение содовых солей сульфадиазина и сульфатиазола.

Автор допускает, как исключение, первичный шов при лицевых ранениях.

В статье обсуждается вопрос о срочном и госпитальном лечении ранений головы, груди, живота и конечностей.

Автор подчеркивает, что при ожогах применение сульфамидных препаратов в настоящее время Подкомитетом по Ожогам Национального Исследовательского Совета считается мало целесообразным.

Ninth Annual Assembly

United States Chapter

INTERNATIONAL COLLEGE OF SURGEONS

Benjamin Franklin Hotel, Philadelphia, Pa.

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Surgeons and Events

by

DR. MAX THOREK

LARREY, DOMINIQUE-JEAN (BARON)

(1766-1842)

DOMINIQUE-JEAN LARREY, the greatest military surgeon of his time, was born at Beaudeau, near Bagnères-Adour (Hautes-Pyrénées) in 1766. He was educated by his mother and the parish priest, Abbé Grasset, who not only taught him the three R's, Greek and Latin, but imbued him with the principles of honor, duty, courage, an all-embracing tolerance and humanity for which he was respected by his fellow men during the remainder of his life. As a youth he entered the navy, serving his apprenticeship at Toulouse, where he studied surgery under his uncle Alexis. So great was his poverty that he walked all the way to Toulouse. In less than two years he won a competition for a sub-assistantship in anatomy.

In 1787 Larrey traveled to Paris, again on foot, since he had no money to go by post. In Paris his poverty forced him to give up his surgical studies. He entered the Royal Marine as an auxiliary-surgeon. His ability and leadership manifested themselves at Brest, where he organized the junior surgeons of the fleet into a study group and lectured to them in anatomy. During that same year he saw his first active service on the frigate *La Vigilante.* On his return to Paris he was made second surgeon-intern at the *Invalides,* and was so fortunate as to become the pupil of the famous Sabatier. For four years he worked in Paris hospitals.

In 1792 Larrey joined the Army of the Rhine as surgeon-major to the French stationed at Strasbourg. There he invented "flying ambulances" at the head of which he rescued the wounded from enemy batteries in the face of fire. Until his time the wounded lay on the field of battle until the fighting was over or were simply abandoned. Each ambulance had a personnel of 340. Each division boasted

Dominique-Jean Larrey, Surgeon-in-Chief to the armies of Napoleon (From an engraving in the author's collection)

12 light carriages and 4 heavy ones, both two-wheelers and four-wheelers, which

(Continued on page 199)

1837

Ministère de la Guerre.

2e Div.n Cab.t 1re Sect.n

8 août

En réponse à une Note du 28 Juillet de M.r le Conseiller d'Etat Directeur général de l'Administration et de la Comptabilité.

Paris le 8 Août 1837.

Examen de MM. Laugier et Durey, intitulé Pandectes pharmaceutiques, consistant dans l'histoire de la pharmacie et de actes administratifs qui en régirent l'exercice dans les temps anciens, comme des réglemens actuellement en vigueur;

Dans la réunion de tous les Documens puisés dans les ministères de l'Intérieur et de la guerre, dans les écoles de pharmacie, dans les Académies et les facultés de médecine propres à éclairer les pharmaciens pendant une carrière civile et militaire ainsi que dans toutes les circonstances où leur intervention est jugée nécessaire, en justice et ailleurs, par les autorités compétentes. ce livre forme, sous ce divers rapports, une compilation des plus utiles à consulter.

Le Conseil de Santé est d'avis en conséquence, qu'il y a lieu d'accueillir la proposition qui est faite au Ministre de souscrire pour un certain nombre d'exemplaires, et de porter ce nombre à cinq qui seraient destinés savoir: quatre pour les hôpitaux d'Instruction et de perfectionnement, et un pour la bibliothèque du Conseil de Santé.

Les membres du conseil de Santé.

Larrey

Baron

Facsimile of letter signed by Larrey and the members of the Council of Health recommending the purchase of *Pharmaceutical Pandects* for the Council's Library (From the original in the author's collection)

Blast Injuries*

COMMANDER BARTHOLOMEW W. HOGAN (MC), U.S.N.
WASHINGTON, D. C.

BLAST injuries, or violent disturbances set up by explosions, received very little attention until the Spanish Civil War. The bombings of London in the present war forced this type of injury upon the attention of the medical profession. Two types of blasts — atmospheric and underwater — have caused death and serious injury in today's warfare to our personnel on land, aboard ship and in the water.

An excellent clinical, surgical, pathologic and neurologic report was made by Capt. McMullin and his co-workers at the Naval Hospital, Pearl Harbor, in Hawaii. Recently Capt. Greaves and Dr. Corey made an exhaustive and excellent report following an experimental study of underwater concussions. I shall give you the results of these two reports and my knowledge of this type of injury from personal experiences in combat areas.

An atmospheric blast wave is essentially a wave of highly compressed air traveling at a rapid rate from the site of the explosion. Moving at great velocity, a high pressure wave may strike anything in its path with all the force and destructiveness of a solid body in motion. The velocity of the wave diminishes rapidly with the distance from the discharge. If caught within 3 to 10 feet of the explosion, the human body may be completely distintegrated by the blast wave alone and thus be destroyed without fragment or trace.

Blast injuries tend to be more serious and more complex in character in explosions occurring in a confined space as, for example, when an aerial bomb penetrates the deck and goes off in a crowded compartment.

When an aerial bomb or a high explosive, like a torpedo or a shell, discharges on board ship, primary injuries sustained by the ship's personnel are of three types: (1) external injuries due to high velocity fragments projected from the casement of the missile; (2) flash burns from combustion accompanying the explosion; and (3) blast injuries from the air pressure wave created by the discharge. Secondary injuries occur, caused by personnel being thrown against solid objects.

The blast that followed the torpedo hits which sank the aircraft-carrier *Wasp* killed every one in a V-shaped area from the site of the hits, just below the water line, upward covering four to five decks. Those near the limbs of the V suffered fractured legs, arms and mutilating injuries. Men standing in passageways near this area were seen to grab their abdomens, double over and collapse in death.

Blast injuries were due to the impact of this wave of compression, generated

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by the explosion, as it impigned upon the body.

The blast wave is an exceedingly intense sound wave. Except very close to the charge, it travels at the speed of sound, 1180 feet per second in the air and 4800 feet per second in the water. It falls off in intensity, approximately as the square of the distance from the charge.

The positive or compression wave is followed by a negative or vacuum phase. Although the positive phase may be of very high magnitude, the negative pressure cannot exceed 15 pounds per square inch, since this would be a perfect vacuum.

ATMOSPHERIC BLAST

Air borne blast inflicts injury at relatively short distances. The pressure generated by very large charges of T.N.T. (1500 pounds) are not lethal, even at distances of around 100 feet. It must be borne in mind that I speak now of blasts alone and not the injury resulting from shrapnel, falling débris, walls, etc. The bomb case cracks, and in cracking is transformed into a multitude of flat fragments with sharp angular edges. As the case disintegrates, the rapidly expanding gases are no longer confined by the case; consequently, the fragments and the expanding gases move outward together at speeds up to 6000 feet per second. A wild race ensues between the fragments and the gases. The expanding gases cool, rapidly lose their velocity and are left by the fragments of the case which continue outward. Persons are picked up bodily and thrown against fixed objects or knocked to the ground.

A series of brain injuries, resulting from atmospheric blast, were reported from the Naval Hospital at Oakland, California, by Due and Abbott. The majority of the cases were marines from Guadalcanal, who had been in fox holes or running for cover when a bomb or shell hit close by, at times within ten feet. The marines had been knocked down and were unconscious. The period of unconsciousness varied from a few minutes to forty days. Several cases had been diagnosed as "war neurosis."

In none of these cases was there any evidence of external trauma. The physical findings were minimal, slight blurring of vision, impaired hearing and some disturbance of reflexes. The mental changes were prominent: personality changes, lethargic, apathetic and dull; and memory disturbances. In 40 per cent of the cases, the electroencephalogram indicated abnormal waves.

The pneumocephalogram proved diagnostic, showing typical signs of a subdural hemorrhage; a few were bilateral.

Trepanation showed 3-4 ounces of yellowish stain fluid and old clots. These were removed.

The mental and personality changes following the operation were quite remarkable. There was a return to normalcy and a rapid convalescence in all cases.

A victim of an atmospheric blast may suffer a rupture of the ear drums, pulmonary pathology, hemorrhage, circulatory collapse, shock and serious intestinal injury.

Quite frequently the blast injury is overshadowed at first by the fractured limb and external injuries from shell fragments or by the flash burn. At other times, there is no external evidence of injury although a serious internal injury to lungs and intestines is present.

About a year ago I was on duty in European waters. The British told me of another disabling effect on the crew of a ship being repeatedly bombed. Some men in an area of the ship away from the blast were found sitting around in an apathetic state, particularly marked among those having no special duties to

perform, while increased concentration is needed among those having a job to do. The condition is characterized by mental torpor and complete apathy with regard to passing events. If these men got into a particular position, they could not summon the energy to change it, and should one of them trip or fall he might well drown in a few inches of oil or water because he was too apathetic to get up.

UNDERWATER BLAST

The *underwater* explosions are much more effective in producing injury due to the medium of transmission.

When an explosion takes place under water, the "shock front" is projected outward in all directions. This shock front or "A" wave is, of course, invisible, but it is this wave that produces injury. The thickness of this compression wave has been estimated at about 5 feet, so that the body of a man would be definitely engulfed in this area of high compression for a fraction of a millisecond.

The expanding gas, formed by the detonated charge, forms a spherical bubble which enlarges rapidly and may show numerous "pulsations" before it rises to the surface and produces the familiar column of spray. These pulsations set up waves which may be readily detected, but are not of sufficient force to produce injury, as far as is known. It is, then, the invisible compression or "shock front" which produces injury and not the more spectacular, expanding gas bubble or "B" wave.

The organs injured by blast wave have been shown to be those containing air. Thus the lungs and gastro-intestinal tract are those most frequently injured, the lungs being most vulnerable. It is believed the injury is caused by compression wave or blast. Injury to the lungs consists of interstitial hemorrhage from rupture of the alveolar epithelium and frank hemorrhage into the alveoli in more severe injury. The individual dies from asphyxia. Thoracic dullness, cyanosis, bloody sputum, rales are the signs of pulmonary blast injury, whether the blast be air or water borne.

Gastro-intestinal injury, so common in victims of underwater explosion, varies from areas of hemorrhage within the gut wall, which may be followed by necrosis and perforation, to frank and immediate perforation. Such injury results over areas of trapped gas within the lumen of the gut. The ileocecal region appears to be particularly vulnerable. A blast pressure of about 500 pounds per square inch is thought necessary to produce rupture of the intestinal wall. The mechanism is as follows: The compression wave travels through the body as though water, since the body is largely fluid. It strikes the intestine, compressing the gas within and, at the tissue-gas interface, it "shreds" or "blows off the surface" of the intestinal tissues, just as a depth charge "blows off the surface" of the water. As the compressed gas within the gut expands, it produces perforation of the gut wall, so weakened.

Thirty-five cases of immersion, or underwater blast injuries, were reported from the Naval Hospital, Pearl Harbor. These men had been admitted five days after the occurrence of the injury.

In general, their histories and physical findings were similar. The severity of their complaints was dependent on the distance they were from the source of the explosion; these distances varied from 100 to 150 feet in the more severely injured. The relative position in the water also modified or increased the symptoms.

With the blast, several experienced a lack of sensation in their legs and a feeling as if these were shortened out of proportion to the rest of the body. Others thought they had been struck at the base of the spine. Many were uncon-

scious or stunned. About 10 to 15 minutes after the explosion, they began to develop abdominal symptoms varying in degree from mild fleeting cramps to severe continuous abdominal pain. All developed a sense of thoracic compression. Many had hemoptysis.

The physical signs varied from slight to moderate dullness over both lungs and rales.

Abdominal signs were striking and varied from moderate generalized soreness and slight rigidity to marked abdominal distention and boardlike rigidity.

Of these 35 cases, 17 were ambulatory. X-ray evidence showed that these 17 had suffered pulmonary injury. Four had definite physical and x-ray evidence of moderately severe lung injury. The remaining 14 cases presented signs of shock and peritonitis—10 recovered, 4 died.

In none of these cases was there any external evidence of injury to the body.

My own experience in the southwest Pacific area last September showed me how devastating these underwater blasts can be to personnel. I saw a group of men swimming toward a destroyer, a depth charge went off, the water blew high in the air and the surrounding water churned up in great excitement, when it had quieted, there were very few bobbing heads seen and these were lifeless. I felt this concussion wave. It was like someone grabbing you around the waist, holding you very tight and suddenly releasing you. It seemed to press your stomach to the backbone and suddenly release it. The impulses and feeling coming through the water were something like the sound of a machine gun firing in the distance. This was apparently due to the pulsating gas bubble producing a series of compressing and expanding pressure waves.

The therapy for survivors of blast injuries to date has been conservative—counteract shock, maintain adequate intake of fluids, colloids and electrolytes with transfusions of plasma, and glucose and saline solution.

Interdict all medication, water and nourishment by mouth, give morphine for pain and restlessness, reduce intra-intestinal pressure by continuous Wangensteen suction, preferably with a Miller-Abbott tube, administer sulfa drugs intravenously, supply oxygen generously, use whole blood transfusions if anemic or if patient shows evidence of intra-abdominal hemorrhage. Attend to vitamin requirements. Operation should not be advised unless there is a definite indication. Do not operate if the patient is seen several days after perforation and is dying from peritonitis. Recent perforation, gangrene of a segment of bowel, and abscess formation demand surgical intervention.

CONDITIONS RESULTING FROM BLAST INJURIES

I shall conclude by summing up the conditions reported resulting from blast injuries clinically and experimentally:

Many organs and structures of the body have been reported to be injured by "blast" and it is indeed difficult to evaluate such reports. Due to the fact that distance from charge, magnitude of charge, presence of missiles, projection of the victim against solid structures, are all but impossible to ascertain.

"War neurosis" and psychotic interludes have been attributed to exposure to concussions. Whether such conditions have organic bases in an injured cortex is not known. But evidence is existent showing that such may indeed be the case.

Subdural hematomas have been described, but whether such arise from "blast" alone remains in doubt.

Optic injuries, corneal and retinal hemorrhage as well as retinal separa-

tion, presence of exudates, have all been attributed to the effect of "blast," but have never been seen, grossly, in animal experimentation.

Injury to the ears is, of course, common. It is interesting to note that we do not as yet know at what pressure the human tympanum is ruptured. It has been stated in ordnance publications that "around 7 pounds per square inch is all that a man can be expected to stand."

Underwater concussion may cause hemorrhage within any of the sinuses, sphenoidal as well as malar and frontal. Apparently injury to these sinuses may be of such violence as to fracture the bone within which it is contained.

Teeth have been reported to have been blown out by "blast" but flying missiles or violent displacement of the body may here be highly suspect.

Pulmonary injury has been described. So characteristic are these lesions, and so vulnerable are the lungs to concussion that the pathologic picture has become recognized in medical literature as "blast lung."

The gastro-intestinal tract may present areas of hemorrhage, or frank perforation throughout its length. The fundus of the stomach is prone to puncture, probably due to the presence of air in this location. It has been shown experimentally that only those portions of the gut containing gas will perforate when exposed to underwater explosions.

It has been commonly stated that injury to the testes, rupture of the G.I. tract due to the entrance of water into the rectum and injury to solid viscera commonly result from exposure to underwater blast. No such injuries have been seen in extensive experiments on animals, either in gross specimens or upon macroscopic examination.

Fractures are supposedly due to the violent displacement of the limbs against some hard object rather than due to blast *per se*. Thus os calcis fracture, so frequently encountered, is brought about by transmitted shock through the plates of a ship rather than by "blast." The same is true of patellar and other fractures frequently described. The effect of blast upon hulls and other large targets may thus produce injury secondarily.

Protection. Any armor or device which *deflects* or cushions the impact of the blast wave will serve as a means of protection. To date, cushioning substances such as kapok or sponge rubber offer most promise. They have the disadvantage of bulkiness and warmth when incorporated into a garment, but it is thought that these difficulties are being overcome.

It should be remembered that as regards underwater blast, only submerged portions of the body may be injured. Thus it behooves the individual who finds himself in the water where explosions may be imminent to raise the chest and abdomen above the surface as much as he is able by utilizing floating débris, or any object which will support him.

Since the blast wave falls off in intensity very rapidly, every effort should be made to swim as far away from a source of concussion as possible, even a few yards theoretically constituting the difference between safety and fatal injury.

The intensity of the concussion wave generated by explosions in air is greatly diminished in depressions, trenches, foxholes, so that "hitting the dirt" is a protection from blast as well as from the resulting shrapnel.*

SUMMARY

Conditions resulting from atmospheric and underwater blast injuries as reported are: organic injuries, "war neuro-

*The opinions or assertions contained in this article are the private ones of the author and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.

sis," subdural hematomas, optic injuries, aural injuries, hemorrhage within the sinuses, pulmonary injuries, gastro-intestinal tract hemorrhage or perforation, injury to the testes, rupture of the gastro-intestinal tract and fractures.

The pneumocephalogram proved diagnostic, indicating abnormal waves in 40 per cent of the cases, and showing typical signs of a subdural hemorrhage.

Underwater blast injuries are due chiefly to the medium of transmission. Among 35 cases admitted to the hospital five days after Pearl Harbor, severity of complaints depended on the distance from the explosion; 17 cases were ambulatory; of the remaining 14 cases of shock and peritonitis, 4 died.

Conservative treatment of blast injuries is advocated.

BIBLIOGRAPHY

Williams, Surgeon Commander E. R. P., R. N.: *Blast Effects in Warfare.*
McMullin, Capt. J. J. A. (MC) USN: *Symposium on Immersion Blast Injuries.*
Greaves, Capt. Frederick C. (MC) USN: *Experimental Underwater Concussion Injuries.*
Greaves, Draeger, Brines, Shaver and Corey (USN): *An Experimental Study of Underwater Concussion.*

RÉSUMÉ

Les explosions atmosphériques et celles qui surviennent sous la surface de l'eau sont classifiées sous différentes rubriques: lésions organiques, névroses de guerre, hématome sous-dural, lésions du nerf optique, lésions de l'appareil auditif, hémorrhagies dans les sinus, lésions pulmonaires, gastro-intestinales, lésions de l'appareil genito-urinaire, fractures, etc.

L'electro-encéphalogramme fut d'une grande valeur diagnostique dans 40 pour cent des cas, et le pneumo-encéphalogramme décéla des signes typiques d'hémorrhagie sous-durale.

Les blessures résultant d'explosions sous eau sont dues principalement à la transmission de vibrations. Sur 35 cas admis à l'hôpital cinq jours après Pearl Harbor, la sévérité des symptômes était en rapport avec la distance de l'explosion; 17 des cas étaient ambulants. Il y eut 4 décès de choc et de péritonite.

L'auteur recommande que les sinistres d'explosion soient traités conservativement.

SUMARIO

Condiciones resultantes de explosiones atmosféricas y submarinas son citadas, como siguen: daños orgánicos, "neurosis de guerra," hematomas subdurales (submeningeales), daños ópticos, o al oído, hemorragias entre los sinuses, daños pulmonares, hemorragias o perforaciones gastro-intestinales, daños a los testículos, ruptura gastro-intestinales y fracturas.

El electroencefalogram ha demostrado datos diagnósticos, indicando olas abnormales en 40 por ciento de los casos; el neumocefalogram demostrando signos típicos de hemorragia submeningeal.

Daños por explosiones submarinas son causadas principalmente por el medio de transmisión. En 35 casos admitidos al hospital cinco días después de Pearl Harbor, la severidad de los daños depende de la distancia de la explosión; 17 casos fueron ambulantes y de los 14 casos restantes de choque y de peritonitis, 4 murieron.

Un tratamiento conservativo es recomendado en daños explosivos.

Выводы

В результате атмосферных и подводных взрывных волн наблюдаются следующие повреждения; органические повреждения, "военные неврозы", субдуральные гематомы, повреждение глаз, ушей, синусовые геморрагии, легочные повреждения, геморрагии и перфорации желудочно-кишечного тракта, нарушение вкуса, различные повреждения желудочно-кишечного тракта до разрывов его.

Диагностика, на основании энцефалограм дает в 40% случаев типичные признаки субдуральной геморрагии.

Повреждения, наблюдающиеся при взрывах морских судов и, в частности, подводных лодок являются следствием давления водяной волны. На 35 больных, принятых в госпиталь на пятый день после военных операций в Пирл Харбор, тяжесть состояния больных зависела от расстояния взрыва; из них 17 больных были амбулаторными, 14 находились в состоянии шока и имели явления перитонита и 14 из них умерли.

Автор предлагает консервативное лечение этих повреждений.

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were equipped with easy springs and furnished with mattresses.

In charge of the military hospital at Toulon, he founded a school of surgery and anatomy there; then he was transferred to military hospitals at Antibes and Nice. Following several campaigns he became professor at the school of Medicine and Military Surgery at Val-de-Grâce.

At Napoleon's bidding, Larrey accompanied him to Italy in 1796; there he visited the principal medical schools. Then he became surgeon-in-chief to the Army of Egypt. Wounded at St. Jean d'Acre, adversity dogged Larrey's footsteps at Alexandria, where he was forced to kill his horses to supply his wounded patients with food. It was during the retreat through Syria, where the troops suffered greatly from blow flies, that Larrey first observed the beneficial effects of maggots in wounds. "These are produced," he said, "in a few hours and increase so rapidly that in the course of a night they grow to the size of a small quill pen. They caused an unpleasant pruritus, but suppuration was greatly accelerated, then stopped entirely. Also the sloughs fell off, and the wounds healed very rapidly, thus apparently shortening Nature's work. As the sloughs were discarded, the maggots were killed with a strong decoction of rue containing a little sage."

In recognition for his services in these campaigns, Larrey was made an officer of the Legion of Honor in 1804 and the following year chief surgeon of the Imperial Guard. He served in campaigns in Germany and Spain, and after the battle of Wagram, Napoleon made him a Baron of the Empire. In 1812 Larrey became first surgeon of the *Grande Armée,* taking part in 60 battles and 400 engagements. He was three times wounded, and performed as many as 200 amputations in twenty-four hours at Borodino. During the campaign against Prussia in 1812, he established his hospital headquarters in Berlin where he lectured to surgeons of the army and the junior surgeons of the Berlin Academy, forming a lasting friendship with General Goercke.

Larrey's valor and devotion throughout the Russian campaign won universal admiration. He visited and was impressed by hospitals in Moscow. Toward the end of the retreat from Russia, Larrey, half-frozen and exhausted, was kept alive by his comrades, even officers helping carry him through the snow and through boiling torrents. They gave him the last of their rations and water and built fires to warm him, with peril to themselves—all evidences of the great affection and gratitude of the soldiers to whom he gave such loving care and who christened him "father of the wounded." Even these hardships did not dim his thirst for more surgical knowledge, for on the retreat from Moscow Larrey passed through Leipzig to visit the ana-

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Mediastinal Wounds Caused by Explosives*

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WITH the single exception of a fatal sword-wound of the skull, the thousands of wounds I have treated during the course of a long military career in the Balkan War, First World War and War of Turkish Independence were caused by firearms. Only after World War II will we be able to complete studies undertaken to determine the nature, kinds and treatment of wounds caused by high-explosive bombs carried by planes, launched from flame-projecting machines or resulting from poisonous gases.

A case of a wound of the anterior mediastinum caused by the explosion of a hand grenade is presented below.

CASE REPORT

In 1920, during the War of Turkish Independence, a militiaman was brought to the Military Hospital at Eskisehir with a hole about 1 cm. in diameter on the median line and at the level of the point where the manubrium meets the gladiolus. There was a purulent discharge, which increased when the patient coughed or breathed deeply. Swelling and depression of the skin surrounding the wound was noted. Clinical examination of the patient had to suffice as we lacked roentgen-ray or other scientific apparatus. The general condition of the patient was good, despite the seriousness of the situation. The pulse was slightly accelerated; the temperature, 37.8 degrees centigrade.

I widened the wound both at the top and bottom; this afforded freer egress to the purulent discharge. On closer examination I found that we were at the anterior mediastinum. We could easily hear the heart sounds and pulsations of the blood vessels. As the insertion of the pleura into the body of the sternum was ruptured, the appearance was that observed during forced inspiration and expiration.

Having cleaned the surface of the wound with especial care and having left a light gauze pack, treatment was continued with the patient lying on his face, after fortifying him with subcutaneous and intravenous injections of serum.

It was surprising that despite the purulent discharge, no complications followed. The cellular tissue to the abdomen or the posterior mediastinum remained unaffected, although the patient had reached the hospital many days after he was wounded, and in spite of excessive suppuration of the wound. This happy condition may be attributed to the extraordinarily strong resistance of the patient.

After two weeks the discharge ceased almost completely, and granulations began to appear. With the increase of the granulations, the exposed portion of the heart and the blood vessels leading to and from the heart began to disappear from view. The field took on the form of a single mass of granulations beating in unison. By the end of the third month with the aid of a few skin grafts, epithelization of the wound had taken place, and a cavity large enough to hold an egg was formed on the breast of the patient. This cavity was, of course, pulsatile.

This condition may be considered a surgical oddity. Many others of similar nature may be reported.

*Presented at the Fourth International Assembly of the International College of Surgeons, New York, June, 1943.

RÉSUMÉ

L'auteur discute les plaies de médiastin causées par les explosifs. Il rapporte le cas d'un malade qui se rétablit complètement après débridement de la plaie et injections de sérum, malgré un retard de plusieurs jours avant l'emploi du traitement ci-dessus cité.

SUMARIO

Heridas del mediastino, causadas por explosivos son discutidas con presentación de un caso en que el paciente dañado restableció y sanó, después de débridement de la herida e inyecciones de suero, aún cuando el tratamiento fué demorado por muchos días, después de un solo exámen físico y clínico.

Выводы

Обсуждается вопрос о ранениях средостения, причиняемых взрывами. Приводится случай, когда больной поправился после debridement раны и введения сыворотки, несмотря на позднее лечение, в период которого проводилось только клиническое исследование.

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tomical museum and see the specimens of nerve dissections prepared by Halle. There he met Meckel's son.

At Waterloo, Larrey's horse was shot from under him and he fell unconscious from sabre cuts. A prisoner of war of Field Marshall von Blücher, he was about to be shot when he was recognized by one of the Prussian doctors who had heard him lecture in Berlin. Larrey's build was that of a typical Frenchman of the *Midi,* short, stocky, round-headed; he had a ruddy complexion and enormous vitality and physical strength. His resemblance to Napoleon was striking; in fact, at Waterloo, he had difficulty in convincing the Prussians he was not the Emperor. Larrey saved the life of von Blücher's son, and the great general's gratitude manifested itself when he had Larrey taken to Brussels and hospitalized until his wounds had healed.

After Napoleon's downfall Larrey was deprived of his honors, his pensions and most of his personal funds; some of these were later returned to him, but he existed in the meantime on the proceeds of a meager private practice. Even under these circumstances he refused an opportunity to go to Brazil as surgeon-general of Dom Pedro, and a similar offer from the Czar of Russia.

He visited England in 1826, where he studied and observed in various hospitals. On his return he was given back his post of Medical Director, which he retained until his death.

Larrey's outstanding reputation was responsible for his appointment as chief surgeon to the Royal Guards following the Restoration. He was also chosen one of the first members of the Academy of Medicine. During his later years Larrey was the author of a number of works on military surgery. He died in Lyons in 1842.

Larrey's first article, published in 1802, "Surgical Account of the Army of the East," was dedicated to Napoleon. His most interesting work is contained in the four volumes of his "Mémoires de Médecine Militaire" (1812-17), which contain the first account of "trench-foot" (1812, iii, 60). In a memoir published at Cairo in 1802, he was the first to point out the contagious nature of *Egyptian ophthalmia* or *granular conjunctivitis.* Wound excision (1812) he got from Desault (1789). He was one of the first to amputate at the hip joint (1830). Larrey wrote a number of important articles

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Tratamiento Electroquirúrgico del Cáncer del Recto*

(Electrosurgical Treatment of Carcinoma of the Rectum)

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SUMMARY

The authors conclude from their experience in the treatment of rectal carcinoma, that there can be no doubt that electrosurgery is the best method for the treatment of rectal carcinoma. With this method, five-year cures were obtained in 50 per cent of the 261 patients operated on by them, with a 2 per cent surgical mortality.

DURANTE muchos años han existido controversias sobre cuál era el método ideal en el tratamiento radical de los tumores malignos del recto, por lo cual la gran profusión de artículos importantes sobre el tema que existe en la literatura médica, por lo que haremos una pequeña síntesis histórica.

Treinta años atrás, no satisfechos del alto porcentaje de recidivas, como consecuencia de la extirpación del recto por vía baja en esa época de elección para la gran mayoría de los cirujanos de las distintas escuelas, la inglesa representada por Miles y la francesa por Quénu, se dieron a la labor de desarrollar y perfeccionar una nueva técnica: el método combinado abdóminoperineal.

El desarrollo y perfeccionamiento de esta difícil y complicada operación demandó un lapso largo de tiempo y, fuerza es confesarlo, costó la vida de muchos pacientes, aún en casos que, dado la precocidad del diagnóstico, se debía esperar una curación definitiva o temporaria; de lo que resulta que muchos cirujanos, conscientes de su deber, no se animaran a someter a sus pacientes a un riesgo tan grande que implicaba el método abdóminoperineal.

Estos hechos estimularon a Lockhart-Mummery, en Inglaterra, a Hochenegg, y a Mandl, su discípulo, en Viena, a Voelker y Lexer, en Alemania, a perfeccionar la vía sacroperineal, la que indicaron en la mayoría de los casos, reservando la vía abdóminoperineal a aquellos casos muy favorables que en la práctica son la excepción.

La práctica en gran escala de la vía baja, unida al perfeccionamiento de los métodos anestésicos, al empleo sistemático de la electrocirujía, como también de suma importancia, la experiencia aumentada por la gran cantidad de casos observados y operados, ha traído como corolario una disminución grande de la mortalidad operatorio y un aumento apreciable de las curaciones definitivas.

Hecho éste pequeño exordio, nos concretaremos en forma suscinta a dar nuestra opinión sobre el carcinoma rectal, su patalogía y tratamiento de elección.

El carcinoma rectal es en su comienzo una enfermedad local, factible de curarse

*Presented at the Third International Assembly of the International College of Surgeons held in Mexico City, August, 1941.

en éste estadío radicalmente con una mortalidad relativamente poco importante, pero que en su faz final se caracteriza por sus trastornos penosos, cuyos desastrosos efectos se puede prevenir cuando se recurre al especializado, puesto que el carcinoma rectal se desarrolla, por lo general, lentamente, pierde tardiamente su operabilidad y produce precozmente sufrimientos que se caracterizan por su tenacidad, que inducen al enfermo a consultar al médico general.

Es, pues, importante definir las indicaciones y contraindicaciones del tratamiento quirúrgico que es, en nuestra opinión, la única radical curativa y lo haremos basándonos en nuestro criterio personal.

En la calificación de operabilidad, hay que distinguir la capacidad operatoria de orden general y local. Las contraindicaciones del método quirúrgico provocadas por causas de orden general son precisas e indiscutidas, colocándose en primer término a fallas del aparato circulatorio, la senectud, trastornos del metabolismo, discrasias sanguíneas, etc.

En cuanto a los contraindicaciones de orden local, es decir, el estadío en sí, del proceso, son muy variables y están de acuerdo con el criterio del cirujano consultado, y las precisaremos más adelante en forma terminante. Pero, queremos, ante todo, recalcar este hecho, que no existe siempre relación entre el estado general del paciente y la extensión local del proceso, que con mal estado general se presentan a veces lesiones fácilmente extirpables, como también la inversa, con buen estado general lesiones de tal extensión que sobrepasan el límite de la operabilidad.

Lo importante en la práctica es la coexistencia de un buen estado general que permita extender los límites de operabilidad local. Fijaremos el límite máximo en aquellas condiciones que sea permitido liberar al enfermo hasta el fin de sus días de su lesión local, haciendo caso omiso de las metástasis alejadas, pues estamos en perfecto acuerdo con Goetze, por haberlo observado desgraciadamente muchas veces en nuestra práctica, que no es lo mismo para el canceroso rectal fallecer a causa de una metástasis lejana, generalmente hepática, que tiene una evolución silenciosa que con los dolores y sufrimientos que acarrea la evolución normal y letal del carcinoma que no son aliviados por los medios paliativos, sean médicos o quirúrgicos.

Aclarado éste concepto, se comprenderá que cuando la mínima esperanza de liberar al enfermo de su lesión esté indicada, no dejaremos de hacerlo y, si bien es cierto que nuestra mortalidad global será aumentada, también será aumentado el número de las indicaciones operatorias.

Creemos que éste criterio es más humanitario que él de aquellos cirujanos que seleccionan los casos e indican tan sólo el tratamiento quirúrgico cuando es dable esperar una curación definitiva; procediendo así, creemos sinceramente hacer obra, que si se redujo en muchos casos a curaciones relativas, hoy ya nuestros resultados han ido mejorando obteniendo un mayor porcentaje de curaciones definitivas.

De esto, se deduce la importancia que en el preoperatorio tienen las indicaciones tendientes a mejorar el estado general para sobrellevar una tan importante intervención y apreciar en la forma más exacta posible la evolución del proceso.

Nosotros creemos que en esta localización, a semejanza de otras localizaciones neoplásicas—nos referimos a la del cuello del útero—, la exploración electro-quirúrgica es el medio más claro y más seguro para fijar los límites de operabilidad, método que en el cáncer rectal ha venido a ser facilitado por dos hechos de importancia: por el desarrollo de la ope-

ración sacral ampliada según Goetze, y, sobre todo y ante todo, por el progreso que el procedimiento electro-quirúrgico ha resultado merced a los esfuerzos de mi maestra el profesor Franz Keysser.

La exploración electro-quirúrgica nos permitirá, sin el menor peligro de siembra, comprobar "de visu" la lesión y operar una cantidad de enfermos cuya contraindicación operatoria dada por otros cirujanos era principalmente la fijeza o enquistamiento que en la pequeña pelvis tenía la tumoración rectal y que la exploración electro-quirúrgica, con la que se puede hacer una verdadera laparotomía exploradora posterior, nos permitirá comprobar el hecho que estas adherencias son sólo inflamatorias y que poco se les puede temer cuando en realidad en el método sacral el coxis y el sacro deben ser sacrificados en el acto operatorio.

Estas adherencias posteriores liberadas, extirpado el sacro y el coxis, nos permitirá darnos cuento exactamente del sitio, tamaño y altura del tumor y fijar los límites de nuestro pronóstico operatorio, haciendo ya una operación radical o una intervención paliativa, y en el mínimo de los casos de lesiones muy altamente situadas, con mal estado general, renunciar al procedimiento quirúrgico y encuadrarlas exclusivamente en el tratamiento médico.

En lo referente a la situación diremos, en las formas ampulares hajas y anoperineales, la vía sacra será la vía de elección con ciertas variantes que comentaremos oportunamente.

Cuando el tumor esté situado enteramente arriba del repliegue peritoneal y exista un márgen razonable de tejido sano en el extremo inferior del recto, no hay argumento basado en patología para no dejar el segmento anorectal.

En estos casos, deben tratarse de preferencia por el método de Hartmann que tiene un bajo porcentaje de mortalidad y todas las ventajas de la operación combinada, es decir, de eliminar los linfáticos y los ganglios situados a lo largo del mesenterio inferior. Es una operación más rápida que la abdominoperineal y se evita en comparación con la operación sacra los inconvenientes de una gran herida que requiere suma y diaria atención durante varias semanas para curar. Se evitan igualmente los peligros de una infección urinaria como también de una hemorragia secundaria o de sepsis local, acortándose con el uso de la operación de Hartmann la convalescencia en por lo menos la mitad.

De menor importancia es el tamaño de la lesión, pues aunque el aumento traiga aparejada la formación de metástasis locales, ella no implica en nada ni desvirtúa en lo más mínimo la capacidad radical operatoria.

La exploración quirúrgica, igualmente permite palpar directamente la tumoración, y sobre este encuentro palpatorio, fundar el pronóstico y la conducta a seguir. Cuando el tumor no se palpe o se palpe con dificultad, significará que es un caso de buen pronóstico operatorio; cuando se palpa habrá que aclarar bien si lo que se palpa es el tumor mismo o la propagación en el tejido retro-rectal en forma de cono, que hemos descrito al hablar del crecimiento local.

La existencia de este cono, aunque significa con seguridad la metastatización local, no impide la capacidad operatoria local.

Otro punto a fijar es cuando abierta la cavidad peritoneal se comprueba la perforación del carcinoma en el peritoneo. De ella hemos hablado igualmente en el capítulo de crecimiento local y considerando análogo al crecimiento en forma de cono en el tejido periproctal, y aunque su encuentro signifique una evolución avanzada del proceso, la operación radical se podrá efectuar igualmente.

La comprobación de lesiones en la próstata en el hombre y del útero y vagina en la mujer, no contraindican la operación radical. Pero sí cuando en el examen por cistoscopía se compruebe la perforación del tumor en la vejiga, hecho de excepción y no observado clínicamente nunca en nuestro material, el caso será catalogado entre los inoperables.

Aunque la perforación peritoneal es un signo absolutamente seguro para la malignidad local del carcinoma, nosotros tenemos una observación (ficha 57774), donde la necropsia efectuada en el Instituto por uno de nosotros no reveló ninguna metástasis alejada y la enferma llegó al "exitus letalis" por degeneración grasa aguda del hígado, comprobada histológicamente.

Ahora bien, cuando al abrir el peritoneo se observa la presencia de líquido y siembra peritoneal en el peritoneo vecino, debe considerarse el caso como inoperable, no sólo radicalmente sino paliativamente, pues con seguridad la metastización se extiende por todo el peritoneo que cubre la cavidad abdominal.

Estos casos, como los que invaden la vejiga o que presentan una generalización ósea, deben ser clasificados como francamente inoperables y no tratarse por ningún medio terapéutico local, que no hará sino agravar su generalización; son los casos en que debe recurrirse exclusivamente al tratamiento médico.

Juzgada la capacidad operatoria local, exteriorizaremos que el método quirúrgico, de acuerdo con la indicación que corresponda, cuenta con dos procedimientos, el radical y el paliativo.

Cuando anatómicamente sea posible el método radical, se indicará la operación sacral ampliada según Goetze, que es el método que reune las condiciones indispensables para considerarlo radical según el estado actual de nuestros conocimientos; pero para indicarlo no basta que el enfermo tenga una capacidad local operatoria, es necesario, mejor dicho es imprescindible, que el paciente no tenga contraindicaciones de orden general, sobre todo circulatorias, tanto centrales como periféricas, que no permitirán el éxito de esta bien reglada pero seria intervención.

Será pues necesario el examen somático y funcional del paciente, lo que nosotros podemos efectuar en forma sumamente eficiente, debido a la colaboración que en el trabajo existe en el Instituto de Medicina Experimental para el Estudio y Tratamiento del Cáncer. Todo enfermo que debe sufrir esta grave intervención, es examinado por el clínico, que comparte con su opinión la responsabilidad de la indicación y la basa sobre todo en el estado del aparato cardiovascular, que es el que produce la mayor parte de los fracasos operatorios.

A continuación expondremos la orientación que a este respecto seguimos.

En cirujía se nos presenta frecuentemente el problema de la operabilidad del paciente desde el punto de vista cardiovascular en presencia de una indicación quirúrgica obligatoria. Y ello se comprende si se tiene en cuenta el papel preponderante que tiene dicho sistema durante y después del acto operatorio.

Es precisamente el conocimiento exacto del estado somático funcional, unido a la información físico-química humoral del candidato, lo que debe constituir la base y dar la seguridad operatoria.

Se sabe y se admite sin reservas que no deben someterse a intervenciones cruentas en estado de insuficiencia cardiovascular no sólo por los peligros que existen de aumentarlos, provocando con ellos estados graves de schoc y de colapso, sino también por el estado humoral metabólico que dificulta en el post-operatorio la restitución tisular.

No se puede ser, en cambio, tan explícito cuando se trata de candidatos con lesiones o trastornos funcionales com-

pensados, porque no se sabe si estos enfermos van a conservar su equilibrio hemodérmico al ser sometidos a los distintos actos operatorios.

"La existencia de una lesión cardíaca no contraindica por sí sola la intervención quirúrgica, dependiendo ésta más bien del estado funcional de dicho sistema." Es por esto que para tener la seguridad operatoria es menester someterlos previamente a los exámenes funcionales clásicos, no sólo en reposo sino también en actividad.

Son principalmente las intervenciones de vientre, laparotomías, en especial las llevadas a cabo sobre el sector genital (histerectomías, extirpación de quistes, fibromas, extirpación del recto, etc.), porque son ellas las que determinan con mayor frecuencia los estados de schoc y de colapso cardiovascular. Por consiguiente es indispensable tener un criterio formado sobre la capacidad de trabajo y de reserva funcional del aparto circulatorio para evitar en lo posible las desagradables sorpresas que suelen epilogar una intervención correctamente practicada.

No existe en la actualidad ni datos anamnésicos ni pruebas funcionales que aseguren en los candidatos la inocuidad de una intervención quirúrgica. Sin embargo, creemos de utilidad tomar como base su comportamiento durante las tareas diarias y su reacción a las pruebas funcionales clásicas. Ello nos dará la base para juzgar su capacidad funcional, no sólo en reposo sino también en actividad.

Al respecto, el Comité de prevención y ayuda al cardíaco, de los Estados Unidos, en el año 1923, propuso la clasificación siguiente, y la cual fué aprobada por The American Heart Association:

1ra clase: Pacientes con lesiones cardiovasculares, capaces de efectuar su actividad física ordinaria, sin molestias.

2da clase: Pacientes con lesiones orgánicas, incapaces de efectuar sus tareas ordinarias sin molestias. Esta clase se subdivide en dos grupos: (1) con actividad ligeramente limitada, y (2) con actividad grandemente limitada.

3ra clase: Pacientes con lesiones orgánicas o con signos o síntomas de insuficiencia cardíaca e incapaces de cualquier actividad física sin molestias.

Aunque esta clasificación no ha sido hecha con fines quirúrgicos y se basa únicamente en la capacidad funcional espontánea profesional y sin tener en cuenta la lesión cardiovascular ni su pronóstico, creemos que ella, unida al resultado de las pruebas funcionales clásicas, puede ser una buena guía para la selección quirúrgica.

L. H. Schmid, en su publicación titulada: "Die postoperative Reaktion des Kreislaufes, besonders nach Laparotomien," en Deutsche Zeitschrift für Chirurgie, compara el trauma operatorio "a un trabajo corporal poderoso llevado más allá de su límite fisiológica de fatiga."

Aceptado este concepto, sólo restaría elegir un test de trabajo y un método seguro de medida.

Los métodos y procedimientos que poseemos en la actualidad par el estudio de la capacidad funcional del aparato cardiovascular no son lo suficientemente exactos y por ello no dan la seguridad que exige el riesgo operatorio.

Sin embargo, creemos que la prueba clásica de Lian y el volumen-minuto circulatorio, efectuados antes y después de un trabajo o ejercicio "llevado al límite de fatiga," son los mejores índices de la capacidad y reservas funcionales, a pesar de las dificultades de su práctica.

Como ya lo hemos dicho anteriormente, las manifestaciones de schoc y de colapso constituyen el mayor peligro durante y después del acto operatorio, y

ellas pueden ser provocadas por la anestesia, trauma, manipulaciones y absorción de substancias protéicas y lípicas durante y después de la intervención.

Eppinger clasifica los colapsos cardiovasculares en "hemodinámicos" y "protoplasmáticos." Los primeros dependen de la disminución del volumen-minuto circulatorio, provocado por una disminución de la presión venosa, velocidad sanguínea y por consiguiente disminución del aporte sanguineo al corazón; los segundos, son determinados por un aumento exagerado de la permeabilidad celular a los elementos del plasma sanguíneo, por lo cual hay una exósmosis vascular, con concentración sanguínea; "hay fuga de plasma sanguíneo fuera de los vasos."

Ambos pueden ser de origen central o periférico, orgánicos o funcionales. Su conocimiento es de suma y gran importancia, por cuanto señalan las indicaciones terapéuticas a seguir. No existe en realidad ningún signo o síntoma capaz de diferenciarlos exactamente. Eppinger propone la observación siguiente: "el estado de repleción venosa periférica." En efecto, en los colapsos hemodinámicos se observan las venas periféricas hinchadas y repletas de sangre, mientras que en los colapsos protoplasmáticos las venas están exangües y aplastadas; tanto es así que ello representa una dificultad seria para las transfusiones o inyecciones endovenosas. Muchas veces, ambos tipos se combinan, dando una forma mixta hemodinámica-protoplasmática, lo cual debe tenerse también muy en cuenta.

Antes de entrar a tratar la terapia de estos estados, creemos necesario decir dos palabras referentes a su profilaxia, y aunque al respecto las opiniones están muy divididas, cuando se trata de los fármacos a procedimientos a seguir. Nunca estará de más tonificar y aumentar la capacidad funcional de un sistema cuyo requerimiento pone a prueba de una manera brusca su resistencia y reacción. Cuando se trata de corazones sanos bastan los exámenes generales y los datos corrientes, pero cuando existen lesiones o trastornos funcionales, es necesario y hasta obligatorio, disminuirlas, procurando llevar al máximo su capacidad de trabajo. Para ello muchos son los procedimientos y fármacos empleados: Gimnasia respiratoria, masajes en los miembros, deshidratación y disminución de peso en los gordos, etc., tonificación cardiovascular a base de glucósidos tipo digital, suero glucosado e insulina y diuréticos, etc. La digitalización previa ha sido muy discutida y a pesar de ella no se tiene todavía una regla fija y aceptada por todos. Creemos que tratándose de corazones lesionadas y siendo la digital el mejor y más seguro medicamento para su tonificación, puede ser empleado sistemáticamente a dosis medianas o pequeñas de½ a 1 unidad gato, 4 a 5 días antes de la operación. Con ello se logra tonificar el órgano y sin molestar ninguna de sus propiedades, por cuanto dichas dosis están alejadas de las dosis de saturación, las únicas dañosas y de dudosa utilidad.

El suero glucosado hipertónico y la insulina, si el metabolismo glúcido así lo permite, constituye un buen método profiláctico por cuanto desintoxica, aumenta los depósitos de glucógeno, aumentando así las resistencias del aparato cardiovascular y retículo endotelial, a las acciones dañosas de los anestésicos, reflejos y absorción de proteínas durante el trauma operatorio.

El sistema nervioso, que tanta influencia tiene en el desencadenamiento del colapso, debe ser también tomado en cuenta, bajando su excitabilidad antes del momento operatorio con morfina, escopolamina, etc. Si a pesar de ello, el estado de colapso se produce, la conducta a seguirse debe estar regida por la forma clínica del colapso. Si es hemodinámico y de origen cardíaco exclusivamente, se

emplearán todos los cardiotónicos y analépticos cardio-respiratorios conocidos y digital, ouabaína, alcanfor, cardiazol, coramina, hexeton, cafeína, esparteína, etc.

Si es de origen vascular-periférico y con disminución de cantidad de sangre circulante: suero glucosado endovenoso 200 a 400 gramos, adrenalina, sueros gomados, etc.

Si es cardio-vascular, se emplearán de preferencia la digitalina, ouabaína, adrenalina (con reservas); se evitará la introducción de grandes cantidades de líquidos, especialmente endovenosos, para evitar una sobrecargo al corazón.

Si se tratara de colapso protoplasmático, deben emplearse substancias que eviten la fuga del plasma vascular, tales como: adrenalina, calcio, inyecciones endovenosas hipertónicas.

La transfusión sanguinea no da, según Eppinger, resultados favorables visibles en gran número de operados.

Si hay schoc por pérdida de sangre (hemorragia), se agregará al suero fisiológico endovenoso, inyecciones gomadas.

TRATAMIENTO QUIRÚRGICO RADICAL ELECTROCIRUJÍA

Nuestra práctica en la cirujía rectal ha ido evolucionando merced al progreso de nuestros conocimientos y de la experiencia adquirida. Así es que en los primeros años, en 1927, al hacerse cargo en forma transitoria uno de nosotros del servicio de cirujía del Instituto de Medicina Experimental, operamos nuestros primeros enfermos por el antiguo método sacral.

En ese entonces (año 1927 y comienzos de 1928), los enfermos que llegaban en condiciones de operabilidad, eran en realidad una verdadera excepción, pues la mayoría lo hacían en en final de sus procesos. En el año 1928, un hecho inesperado para nosotros vino a despertarnos la atención por un método conocido pero caído un tanto en desuso y reducida su acción al campo de ciertas especialidades; me refiero a la electrocirujía, cuyas bondades habían sido puestas de manifiesto con todo entusiasmo por Cerny y Doyen en Europa y por Eudoro Cisneros entre nosotros.

Keysser, pioneer esforzado de la electrocirujía, nos mostró en su primera espontánea visita al Instituto del Cáncer, en forma brillante y objetiva, cuánto se podía lograr de este método, puesto al día merced a su ciencia y a su tenacidad y que la electrocirujía, debido a la existencia de aparatos por él ideados, de gran rendimiento, en los cuales se posibilita el uso simultaneo de diferentes clases de corrientes para fines quirúrgicos, era un medio muy útil cuando no insubstituíble en el tratamiento quirúrgico del cáncer. A él le debemos todo nuestro entusiasmo y el progreso logrado con éste medio terapéutico.

Desde ese entonces comenzamos a tratar los cánceres inoperables, haciendo intervenciones paliativas y de inmediato, impresionados por sus brillantes resultados, extendimos la indicación a la operación radical, haciendo nuestra primera operación electroquirúrgica de recto, al finalizar el año 1928.

A partir de esa época, en estas localizaciones como en otras neoplásicas, la electrocirujía, por indicación de la dirección del Instituto, suplantó a la cirujía cruenta, pudiendo decirse en honor de quien la rehabilitó y la enseñara sin egoísmo—el profesor Keysser—que es patrimonio de la escuela argentina de cancerología el haber sido la primera en adoptarla y estandardizar el procedimiento en el tratamiento electroquirúrgico rectal, pues si bien hoy vemos que Kirchner, Goetze, Mandl, verdaderas autoridades en cirujía rectal, indican sus ventajas, en su visita a Alemania en el

año 1933, al ponerse uno de nosotros (Carranza) en correspondencia con el profesor Goetze con el deseo de verle practicar su método, contestaba textualmente, al acusar recibo de su monografía sobre el tratamiento electoquirúrgico del cáncer, que quería hacer resaltar que él practicaba su método solamente con cirujía cruenta. Esto era en el año 1933, y nosotros lo hacíamos desde el año 1928.

No es nuestro propósito insistir en las ventajas del procedimiento electroquirúrgico. Todas ellas han sido comentadas en extenso en diferentes publicaciones anteriores, y sobre todo en sus fundamentos en el trabajo "Tratamiento quirúrgico del cáncer uterino grave por la electrocirujía" (Carranza, año 1932), y en la comunicación que sobre el tema hizo a la Sociedad de Cirujía en el año 1933, que fué relatada por el profesor Copello sintetizaremos tan sólo nuestra opinión sobre ella, diciendo lo que acertadamente expresara Heitz Boyer al comentar sus ventajas en la Sociedad de Cirujía de París, en el año 1935: Ella permite "de faire mieux ce qu'on faisait déjà"; como también extender nuestras posibilidades quirúrgicas, operando enfermos que sin su ayuda nadie osaría formular una indicación operatoria; fundamentando sus beneficios y ventajas sobre la cirujía cruenta, en la oclusión de los vasos sanguíneos y linfáticos, efectos anti-infecciosos y anti-schocantes debido a las propiedades de las corrientes de alta frecuencia.

Desde el año 1928 hasta 1931, practicamos la operación sacral vieja según Hochenegg y Lexer, y desde esa fecha hasta ahora, debido a los trabajos fundamentales de Goetze para conseguir una radicalidad efectiva, preferimos su técnica, que en muchos puntos la efectuábamos instintivamente, forzados por las circunstancias, pero sin haber dado la explicación ni el fundamento por él tan magistralmente puestos en claro en su comunicación a la Sociedad de Cirujía de Berlín en 1931; y la clasificamos de operación sacral ampliada, de acuerdo con Mandl, el sucesor de Hochenegg en Viena, donde continuara con todo brillo la escuela de su maestro en cirujía rectal.

Técnica.—Diremos que esta operación la efectuamos en dos tiempos: primer tiempo, colostomía y exploración de la lesión, a lo que sigue el tratamiento del recto enfermo por lavajes rectales, lo que permite la indicación de la radioterapia penetrante, que modifica favorablemente las lesiones inflamatorias concomitantes y después que el enfermo ha abandonado el lecho y cuando haya recuperado y mejorado su estado general, haciendo dar la idea, ilusoria para él, de que su lesión ha desaparecido, es el momento y nunca antes, de operar radicalmente al enfermo.

Insistimos sobre este hecho que nos ha enseñado la práctica: nunca se deberá apresurarse a efectuar el segundo tiempo en la creencia de que se favorecerá el pronóstico, ya que el tiempo de la premura de la indicación operatoria ha pasado, y es mucho más importante mejorar el estado general, única medio que permitirá la esperanza de operar con éxito en forma radical, es decir definitiva.

Quédanos expresar qué diferencia existe entre el método sacral viejo y el método sacral ampliado según Goetze, haciendo notar que el moderno presupone para su práctica el conocimiento o haber practicado esta vía, que cuando se la domina, da un campo operatorio amplio que permite explorar la cavidad abdominal en sujetos delgados en forma y hasta una altura insospechadas, y la primera reflexión que hará el cirujano al ver la facilidad que permite el método, será: ¿cómo todavía cirujanos experimentados operan pequeños cánceres bajamente situados, por vía combinada, forzando las indicaciones de éstos en la esperanza—para nosotros infundada—

de rebajar la mortalidad operatoria y mejorar los resultados definitivos?

No queremos decir con esto que el método sacral ampliado es el único e insubstituíble en el tratamiento del carcinoma rectal, pero sí que es él de elección y que quede indicarse en la gran mayoría de los casos, es decir, en las localizaciones ampulares y anoperineales, y en los otros casos, o sea en aquellos en que existen contraindicaciones relativas por la gravedad del estado general, debe ceder su sitio al método viejo sacral según Hochenegg, que en sus manos y con simple cirujía cruenta ha dado resultados muy buenos, teniendo que esperar—con la ayuda que le presta el procedimiento electroquirúrgico — que se beneficiarán los resultados.

La vía sacra.—Caracteriza la operación conocida con el nombre de Kraske, la extirpación de una porción más o menos extensa del sacro como tiempo previo de la resección o amputación del recto.

Es ella, pues vía de acceso sujeta a distintas modalidades y no una técnica preciso en sus detalles. Expuesta por primera vez por Kraske en el 14° Congreso de la Sociedad Alemana de Cirujía de Berlin en 1885, tuvo de inmediato, no sólo en Alemania sino en todas los centros quirúrgicos de importancia una gran acojida durante un decenio. Pero el exceso de confianza que se cifrara en ella hizo que se extendieran sus indicaciones, haciendo que sus resultados fueran malos, traducidos por un aumento de la mortalidad operatoria, un elevado número de recidivas locales, a lo que debiera agregarse además que los resultados funcionales alcanzados fueron mediocres.

La operación de Kraske fué reemplazada entonces por el método abdóminoperineal en Inglaterra y Francia, que constituyó, sin duda alguna, un progreso, ya que el procedimiento beneficiara de las técnicas más modernas fundadas en el conocimiento de la patología rectal, practicándose una intervención mucho más amplia del recto en block con sus tejidos vecinas y los linfáticos.

Sin embargo, an Alemania y en Austria, los cirujanos permanecieron fieles a la vía sacra, tratando de beneficiarla con los adelantos en materia de técnica en la cirujía intestinal, y fueron en ese entonces Voelker, Lexer y Hochenegg los que la defendieron, y en la actualidad Goetze y Mandl son sus más cálidos defensores.

Nosotros concordamos con ellos que la vía sacra no merece el olvido en que la tienen la mayoría de los cirujanos, ya que ella facilita las intervenciones sobre el recto, proporcionando un amplio campo operatorio que permite hacer una operación sumamente radical, y por una razón fundamental: que el recto, órgano perineal, debe ser extirpado por vía baja y no por la vía abdominal.

Posición del enfermo.—La posición del enfermo en la vía sacra tiene gran importancia. La mayoría de los cirujanos prefieren la posición lateral que tiene como principal ventaja la comodidad del paciente en esta larga intervención. Pero esta ventaja está invalidada por éste hecho más importante: que la región no se visualiza homogeneamente y que el cirujano que debe operar sentado en esta posición, tiene en ella dificultades para diferenciar claramente las distintas fases de la intervención. La posición más lógica es la abdominal, posición de Depage, que fué el primero quien la preconizara, a la que se tilda de ser poco cómoda para el paciente que no tiene el hábito de ella y en la cual tiene que apoyar su cara lateralmente sobre la mesa.

De nuestra dilatada práctica deducimos que ninguna posición ofrece las ventajas al cirujano que las de la posición de Depage.

Entrenado el enfermo et esta posi-

ción, igualmente que acostumbrado el personal auxiliar a conocerla y al colocar al enfermo en forma confortable, se evitan los inconvenientes que algunos autores le han reprochado y que nosotros no hemos observado en nuestra práctica.

Lo fundamental es lo siguiente: estando colocado el enfermo en posición abdominal, las nalgas están tensas, las partes laterales izquierda y derecha visualizadas en forma igual y el cirujano colocado entre las piernas que están separadas, como lo indica la figura respectiva, puede operar de pié y ser asistido por dos ayudantes colocados a la derecha e izquierda del enfermo, que pueden efectuar su tarea en forma correcta y cómoda.

Todos los cirujanos sabemos el valor que tiene la ayuda eficaz y sistemática que lleva a la estandardización de la operación con el consiguiente beneficio para el paciente.

Debemos manifestar que sólo excepcionalmente, por incapacidad física o por extrema senectud del enfermo, no utilizamos la posición abdominal, valiéndonos de la posición de la talla con la pelvis elevada.

Recuerdo anatómico. — Haremos un pequeño recuerdo de la anatomía topográfica de la región cuyo conocimiento es de capital importancia si se quiere efectuar una operación bien reglada; somos de los que creemos que es perjudicial que el cirujano haga exceso de virtuosidad anatómica, pero que reconozca con seguridad las relaciones topográficas modificadas a veces en alto grado por el proceso neoplásico, y que sólo éste recuerdo anatómico constante hará salvar los escollos y no tener accidentes operatorios desagradables.

La región sacra, topográficamente, es de extrema simpleza en sus planos superficiales; en la línea media, se encuentra el coxis y, por encima, el hueso sacro, del cual es fácil y sin ningún peligro resecar su última vértebra, para lo que basta liberarlo de las inserciones del músculo glúteo mayor a la derecha e izquierda, no existiendo vasos ni vervios importantes a respetar, salvo la arteria sacra media que no se lesionaré si se sigue una técnica apropiada, y en caso que ello ocurriera, basta tomarla con una pinza y efectuar la ligadura biológica, aplicando simplemente el electrodo activo sobre la pinza hemostática.

Esta simpleza topográfica desaparece de improviso cuando se penetra en el interior de la pelvis, y se observa, y nos ha pasado a nosotros mismos en nuestras primeras operaciones por vía sacra, que esta intervención que se desarrollaba hasta este momento en forma elegante y precisa, deja de ser así para dar lugar a maniobras confusas, falto el operador de la orientación anatómica justa; se siente y se trasluce la indecisión y está librado al azar en encontrar en éste momento, en una maniobra ciega, la ruta que se ha perdido.

Los que hemos luchado con estas dificultades, hemos tratado de subsanarlas, recurriendo a los libros clásicos de medicina operatoria que son muy poco o nada explícitos en estros detalles de la técnica; por lo que hemos resuelto hacer una revisión de la anatomía topográfica de la región, tomando como base los fundamentales pero ya anticuados trabajos de Voelker.

Al distinguido anatomista Dr. J. Cateula debemos los cortes anatómicos que figuran en este trabajo. Ellos han sido efectuados en la Cátedra de Anatomía topográfica del profesor Galli y hechos de acuerdo a las necesidades quirúrgicas que hemos mencionado, tratando de aclarar las relaciones quirúrgicas importantes y deshechar aquellos datos que tengan un simple interés anatómico.

Estas preparaciones anatómicas, hechas en amplia colaboración del cirujano

con el anatomista, permiten compenetrarse en forma práctica del estudio de las envolturas o fascies del recto, cuyas descripciones son tan variadas según las diferentes escuelas y sobre todo confusas, como también nos han servido para deshechar nociones erroneas que se repiten en todos los textos y artículos sobre medicina operatoria, gravándonos, en cambio, en nuestra mente las relaciones importantes que no debe olvidar el cirujano en el momento operatorio.

LA AMPUTACIÓN SACRAL DEL RECTO

Usamos en esta intervención de preferencia la anestesia raquídea a la novocaína, cuya dosis se gradúa según el peso del enfermo, pero no sobrepasando nunca la cantidad de 12 centígramos. Esta anestesia nos ha permitido operar cómodamente todos los casos de nuestro material, y en casos muy excepcionales que podemos traducir en el 1-2 por ciento, ha sido necesario completar la anestesia raquídea en el tiempo final de la intervención con gases.

Anestesiado el enfermo en decúbito prono, con los muslos flexionados en ángulo recto y los miembros inferiores ampliamente separados y colgando así abajo; aplicación del electrodo inactivo en el bajo vientre; limpieza de la ampolla rectal con una solución de ácido pícrico; colocación en el ano de una gasa embebida en esta solución y cierre de este orificio por sutura en bolsa, tomando la gasa.

Utilizando la corriente de electrotomía, se incinde la piel a partir de la región sacra en la linea media, por encima del tercer agujero sacro, y se desciende hacia abajo, un poco a la izquierda de la linea media hasta circunscribir en ano. División del tejido celuloadiposo en toda la extención de la herida, utilizando la misma corriente.

Se separa el glúteo mayor de sus inserciones sacras, igualmente el ligamento túberosacral, inserto por debajo de las fibras de dicho músculo; se secciona igualmente el ligamento espinosacral, para lo que se utiliza la corriente de coagulotomía, y se mantiene el cirujano en la proximidad de la región ósea para evitar la hemorragia que es nula y salvar la arteria pudenda común que corre más hacia afuera.

Osteotomía del sacro por debajo del tercer agujero sacro, sirviéndose de un escoplo amplio, con el cual se golpea lentamente. Seccionado el hueso, se tira hacia abajo con la ayuda de un tenáculo o un grancho apropiado, separando con cuidado el hueso de la fascia pelvivisceral, evitando así herir la arteria sacra media.

Hecho esto, se separa el recto conjuntamente con su envoltura fibrosa que contiene el tejido conjuntivo retrorectal, de la cavidad ósea por medio de la maniobra descripta por Goetze, que se efectúa con gasa montada, con lo que se crea así una amplia cavidad que deja visualizar arriba el promontorio, hacia adelante el recto con su envoltura fibrosa y hacia abajo los elevadores recubiertos por la fascia anal.

Comienza ahora en realidad la intervención, donde es necesario el conocimiento topográfico que hemos mencionado arriba. Debajo del sacrocoxis extirpado aparece una tensa capa de tejido conjuntivo con estrías de tejido adiposo. Es la fascia que recubre la parte externa del músculo elevador del ano (fascia musculo elevator ani). Esta fascia recubre lateralmente el tejido muscular, pero se transforma en la linea media en una especie de aponeurosis que en éste sitio mediano está adherida íntimamente al recto que se encuentra colocado por debajo. Esta adherencia mediana es de diferente ancho, pero, en general, es de 2 cm. y la variación de extensión depende de la extensión del proceso rectal.

Como el músculo elevador del ano está adherido lateralmente a la pared pelviana, lleva el camino en su parte externa a la pared pelviana y no al recto; hay que seccionar al músculo elevador e ir por su parte interna, con lo que se llega al embudo por él que pasa el recto. La sección del músculo elevador no se debe efectuar en la linea media sino a ambos lados, algunos centímetros de la linea mediana. Las fibras musculares se seccionan transversalmente a su curso de arriba hacia abajo; para ello se emplea el corte de coagulotomía. No se produce hemorragia al hacer este corte y no es necesario ligar vasos, quedando de la sección bilateral de los elvadores un trozo muscular rectangular de 6 a 8 cm. de largo por 4 a 5 cm. de ancho, colgando del recto, que puede servir para traccionar este órgano en uno u otro sentido.

Se ha seccionado el músculo elevador del ano; todavía no tenemos a la vista el recto sino una capa de tejido brilloso y laxo, de aspecto de una bolsa serosa. Es la hoja visceral de la fascia pelviana. Esta hoja visceral de la fascia pelviana rodea en la región sacra al recto y a las partes urogenitales que se encuentran por delante. Reviste, pues, en el hombre, al recto conjuntamente con las vesículas seminales, al cuello de la vejiga y a la próstata, y en la mujer al recto, cuello uterino y vagina. Si uno quiere encontrar el camino a la cara anterior del recto, es decir, al espacio entre éste y el tracto urogenital, no se debe mantener en la parte externa de este tejido conjuntivo, que nos llevaría a la cara anterior de la próstata o de la vagina. Hay que incindir la fascia visceral pelviana y, hecho esto, llegará fácilmente a la cara anterior del recto.

Indicaremos cuál es el sitio más apropiado para hacer la incisión de esta fascia. Tirando por intermedio de la sutura del ano hacia abajo y hacia el costado por medio del tejido muscular restante del elevador y estando todavía recubierto el recto por la fascia visceral, se ven, por transparencia, vasos sanguineos que van longitudinalmente; son las venas del plexo prostático. Estos vasos marcan el pasaje del recto a la próstata, pues se encuentran a ambos lados en la cavidad que queda lateralmente entre estos órganos. La incisión de la lámina visceral debe efectuarse dorsalmente a estos vasos y realizarse en ambos lados y en la mayor extensión posible. En esta incisión, se cortan algunas ramas vasculares, pero de poca importancia y que no exigen ligaduras sino simple coagulación. Hechas estas dos incisiones, es fácil separar al recto de las formaciones situadas delante de él, existiendo tan sólo adherencias a estos órganos en la parte mediana, que se dejan despegar fácilmente con el dedo.

Hemos llegado a la capa de tejido situado en el hombre entre el recto, la próstata y las vesículas seminales, capa conocida en la escuela francesa por su condición laxa con el nombre de "zone décollable." Se pasa de lado a lado, con ayuda de una pinza apropiada, un lazo de gasa que sirve para traccionar el recto, con lo cual se hace mejor la separación del órgano de la excavación sacral. Hecha esta maniobra, se ponen tensos algunos cordones de tejido conjuntivo, situados en el tejido grasoso del mesosigma. La arteria hemorroidal no se hiere, pues se encuentra situada profundamente en la grasa del mesosigma, cerca de la pared intestinal. La sección de estos cordones de tejido conjuntivo, que se hace igualmente con cortes de coagulotomía, permite una movilización mayor del intestino, que se corre más hacia abajo.

Llegamos ahora a la incisión del peritoneo. El peritoneo asienta sobre la vejiga y las bolsas espermáticas en el hombre, sobre el cuello uterino en la mujer, en forma más laxa que sobre el

recto. Si se retira el recto de las partes que están por delante, queda la parte envolvente adherida a la cara anterior del recto.

Abertura del peritoneo: Casi a la mitad e altura entre el promontorio y el borde del sacro resecado, a 2 cm. a la derecha de la linea media (es decir, a 4 cm. del recto que está situado en el hombre más hacia la izquierda), se secciona, por medio de un pequeño corte longitudinal, la fascia pelvivisceral y se empuja el tejido laxo, que está debajo, hacia la izquierda. Se choca entonces contra una membrana serosa fuerte que es el peritoneo, la que se incinde longitudinalmente.

Nosotros hemos comprobado en nuestros cortes seriedos que esta indicación dada por Goetze en sus trabajos es exacta y que éste es el sitio más apropiado para abrir el peritoneo por vía sacra; y, además, éste hecho importante: que el recto, en el hombre, está lateralizado a la izquierda, mientras que en la mujer guarda una posición mediana (Ver cortes anatómicos, Figs. 7 y 8).

En éste sitio, no hay vasos que molesten, y los uréteres, escollos siempre a evitar en estas intervenciones, son llevados en esta forma hacia adelante (fuera de la fascia pelvivisceral), y aún cuando ellos se encuentren fuera del campo operatorio, es aconsejable visualizarlos para evitar su lesión, sobre todo en la mujer; y recordemos que de los dos, el izquierdo es el que guarda una relación más íntima con el recto (ver lámina ilustrativa correspondiente).

Después de haber reparado el peritoneo y agrandado la incisión hacia arriba y hacia abajo, se penetra con el índice derecho por afuera del ya visualizado colon pelvineo, y se hace con la yema del dedo bombear la bolsa peritoneal del lado izquierdo y, libre ésta de las adherencias que pueden presentarse, se reemplaza el dedo, según lo aconseja Goetze, por un instrumento curvo, que puede ser un gancho de Trendelenburg usado en la cirujía pulmonar. Nosotros usamos un Dechamps especial de gran tamaño, y sobre su punto se abre el peritoneo a la izquierda en la misma forma que hemos hecho a la derecha, con un corte longitudinal, que se agranda hacia arriba y abajo, reparando luego su borde lateral.

Abierto el peritoneo, se coloca una rienda que tire el recto y ponga tenso el cordón vascular de la arteria hemorroidal superior, que es entonces fácilmente ligada con una doble ligadura con seda y seccionada a la altura del promontorio.

Hecho esto, el colon cede de golpe y se desarrolla con facilidad el ansa sigmoidea. Como el enfermo está colocado en posición abdominal y en ligero Trendelenburg, las ansas intestinales no molestan en absoluto, y se observa claramente el espacio entre la vejiga y la pared rectal anterior. Se visualiza exactamente el peritoneo incindido a la derecha e izquierda del colon pelviano, y estos cortes son unidos, como en el método abdóminoperineal, por medio de un corte semilunar delante del recto y efectuado éste tiempo bajo el control visual, se separa el recto con corriente de electrotomía de la vejiga, de las vesículas seminales, conductos deferentes y próstata, respectivamente, en la mujer del cuello del útero y de la vagina.

Este acto operatorio se efectúa con sorprendente facilidad. Ligaduras hemostáticas no son necesarias, pues, ligada la hemorroidal superior, la región está exangue, ya que casi todos los vasos en este sitio son tributarios de ella. Nos restará ligar tan sólo la arteria hemorroidal media situada lateralmente en los llamados alerones del recto.

No nos explicamos porqué algunos autores sacrifican la arteria hipogástrica y, con ella, vasos importantes, como la glútea mayor, la arteria vesical, la ute-

rina y la pudenda, cuando está plenamente demostrado que la irrigación del recto depende en su casi totalidad de la hemorroidal superior, y el resto de la media e inferior.

Siempre bajo control visual, se completa la sección del recto de sus partes laterales y, una vez hecho esto, se fija la altura donde se seccionará ulteriormente el colon sigmoideo, y se desarrolla esto en forma que no sufra tironeamientos y que tenga una irrigación apropiada, lo que se consigue respetando la arcada marginal. Luego, se cierra el peritoneo a la izquierda y derecha por medio de una sutura continua con catgut, que empieza en la parte superior de su abertura y desciende hasta el sitio en que se formará un nuevo espacio de Douglas.

Cerrado el peritoneo totalmente y reforzada su sutura con unos puntos de seguridad, se secciona recién el intestino en la forma habitual y el muñón, cerrado por un clamp, so fija en la parte superior de la herida del lado izquierdo.

Se aconseja, y nosotros lo practicamos, recubrir el muñón sigmoideo con una capa de goma aséptica y mantenerla cerrada durante 48 horas. Liberado el recto fácilmente de sus conexiones inferiores, se ponen algunos puntos de contención y se tapona ampliamente la cavida creada, lo que da una gran seguridad al enfermo en lo referente a la infección tan temida en las intervenciones del carcinoma rectal.

De la técnica descripta, el único de dificultad en la técnica operatoria es la ligadura en sitio apropiado de la arteria hemorroidal superior, que debe hacerse en el mismo sitio que se efectúa en la operación abdóminoperineal, es decir, a 2 cm. por encima del promontorio.

Sintetizando, la operación debe desarrollarse en los tiempos siguientes:

Primer acto operatorio: Sección del elevador del ano en sitio apropiado;

Segundo acto operatorio: Sección de la fascia pelvivisceral;

Tercer acto operatorio: Desprendimiento del recto de las formaciones genitales anteriores;

Cuarto acto operatorio: Abertura del peritoneo;

Quinto acto operatorio: Ligadura de la arteria hemorroidal superior;

Sexto acto operatorio: Cierre del peritoneo;

Séptimo acto operatorio: Sección intestinal en la altura apropiada;

Octavo acto operatorio: Extirpación del recto de arriba abajo;

Noveno acto operatorio: Cierre de la cavidad por taponamiento.

TRATAMIENTO DE LOS CÁNCERES INOPERABLES

Juzgado un cáncer de recto inextirpable radicalmente, la técnica usada por nosotros es la siguiente: Después de haber efectuado el ano contra natura ilíaco definitivo, se hacen las mismas indicaciones complementarias como hemos indicado en el capítulo sobre el tratamiento radical, que sirve para preparar al enfermo para la práctica indefectible de la lesión por la electrocirujía, porque nosotros creemos firmemente que el ano contra natura, sólo obra eficazmente en el caso raro y eventual de una oclusión, pero que no tiene acción sobre la evolución del cáncer en sí, y menos en el tratamiento de sus síntomas más penosos: fenómenos de compresión, intoxicación, pérdidas tenaces, etc.

En estas lesiones inoperables, nosotros asociamos siempre, en este tiempo de espera de buen funcionamiento del ano, la radioterapia penetrante.

La intervención en sí, tiende a eliminar en la forma más radicalmente posible la lesión; claro está que en estos casos es imposible fijar una técnica única, que ella está supeditada según el caso, ex-

tensión y adherencias que la lesión tenga con los órganos vecinos.

En lesiones bajamente situadas el procedimiento es más simple, en oposición a él de casos de lesiones altamente situadas por encima del fondo de saco peritoneal, que serán más difíciles de tratamiento y más peligrosas, en las cuales se aconseja efectuar este procedimiento paliativo sin abrir el peritoneo que actuará de aislador sobre la vagina, cuello uterino y vejiga, respectivamente.

Caracteriza al procedimiento el tratamiento electroquirúrgico del cáncer inoperable, el siguiente tiempo: la abertura dorsal del recto por corte de coagulación, después de haber efectuado naturalmente la exposición amplia del recto, asiento de la lesión, por la resección del sacro y del coxis. Hecho este tiempo de la abertura dorsal del recto, se procederá bajo la vista a la coagulación del tumor.

Generalmente este corte longitudinal se efectuará sobre un tapón de gasa montada introducido por el recto para protegerlo en el caso que la tumoración esté situada también sobre la pared posterior, se coagulará la tumoración desde la luz rectal en la forma más amplia posible, esto con el objeto de evitar las hemorragias.

El procedimiento electroquirúrgico en los cánceres inoperables, tema sobre el cual tenemos gran experiencia, ofrece ventajas dignas de tenerse en cuento y de gran interés en beneficio de los enfermos, pues a veces se obtienen mayores resultados de los previstos, y esto así: después de haber tratado enfermos electroquirúrgicamente en sus tiempos primeros de la intervención por la coagulación del tumor, el calor hace separar la tumoración rectal de las adherencias que ella tenía con los órganos vecinos, haciendo posible una operación radical, es decir, que en casos dados, la electrocirujía ha tornado un caso inoperable en un caso operable. Cuando esta feliz contingencia ocurre, se cierra con un clamp la abertura dorsal practicada y se procede a la amputación radical calcada ya de la operación sacral vieja o de la amputación coxiperineal.

En caso que esto no sea posible, se efectúa la sección del recto por encima de la lesión, fijando el cabo a la extremidad superior de la herida, y se trata de suprimir la tumoración con la parte del recto, asiento de ella, por coagulatomía, después de haber sido coagulada, finalizando la intervención extirpando la parte inferior del recto incluyendo ano, esfinter y grasa del espacio perirectal, quedando al finalizar la intervención, una cavidad semejante a la restante al efectuar una amputación perineal típica.

Siempre queda en estos casos, claro es al cirujano especializado, la pena de no poder actuar radicalmente, y en este procedimiento hay que contar siempre, cuando el proceso extendido situado en la pared anterior, fijándolo a la vejiga, sobre todo en el hombre, a la eventual formación de una fístula, que retardará pero no impedirá, como nos ha ocurrido, la cicatrización que concluye por cerrar muchas veces estos procesos fistulosos.

Como contraindicación del procedimiento de la electrocirujía en la forma que hemos descripto, se encuentran aquellos casos extendidos en que se comprueba, una vez la lesión explorada quirúrgicamente, que ella se extiende al fondo del saco peritoneal infiltrándolo. En estos casos no se podrá efectuar la electrocoagulación en forma correcta, sino hacer una electrocoagulación de limpieza que tendrá efectos más morales que curativos.

Cuando por causas circumstanciales no es posible efectuar el tratamiento electroquirúrgico paliativo a cielo abierto, para nosotros él de elección y que se basa en la rectotomía posterior, método propuesto desde hace muchos años antes

de conocerse el procedimiento electroquirúrgico por Denonvilliers y Verneuil, para combatir la amenaza de ileus en el carcinoma rectal inoperable, puede recurrirse a la electrocoagulación transanal, usada por Stefani, Schmidt, Strauss y sobre todo por Henschen, de Basilea, que ha hecho construir un instrumental especial para la electrocoagulación endorectal del carcinoma.

Nosotros hemos hecho en nuestro relato al Octavo Congreso de la Asociación de Cirujía de Buenos Aires un estudio detallado del procedimiento transanal.

Ahora bien, prácticamente, nosotros lo usamos excepcionalmente, por creerlo inferior en sus resultados al método anteriormente descrito, y lo hacemos forzados por las circunstancias, cuando la edad muy avanzada de los pacientes o una contraindicación seria de orden general impidan practicarlo.

Como conclusión, queda sentado, para nosotros, que el método electroquirúrgico es de elección en esta localización de las neoplasias, y que con él se ha conseguido un sensible mejoramiento de los resultados, ya que de nuestra experiencia surge que se puede obtener un 50 por ciento de curaciones de más de 5 años. Esta cifra se refiere a 261 enfermos operados por nosotros, con una mortalidad operatoria de 2 por ciento, lo que es el mejor elogio que se pueda hacer del procedimiento.*

RÉSUMÉ

Les auteurs font un rapport sur le cancer rectal, en considérant premièrement quelques données statistiques, relatives à la fréquence, ses formes cliniques, etc., chez un total de 926 malades de cette localisation de l'Institut de Médecine Expérimentale de Buenos Aires. Ils passent ensuite à l'étude des résultats obtenus par la Roentgenthérapie et le radium dont les succès médiocres en comparaison avec ceux de l'électrochirurgie, les obligent à se détenir sur ce dernier traitement, dont ils exposent les détails.

A base de leur expérience obtenue dans un gran nombre de cas traités, les auteurs formulent la conclusion suivante: "Il n'existe pas de doute pour nous, que l'électrochirurgie est le traitement d'élection pour cette localisation néoplasique et qui a permis d'obtenir une amélioration considérable, des résultats puisque notre expérience nous montre que l'on peut atteindre 50 pour cent de guérisons de plus de 5 ans. Ce chiffre se réfère à 261 malades, opérés par nous, avec un mortalité opératoire de 2 pour cent, ce qui est le meilleur éloge que l'on puisse faire de ce traitement."

SUMARIO

Los autores hacen una relación sobre el cáncer de recto y después de considerar algunas cifras relativas a la frecuencia, formas clínicas, de los enfermos tratados en el Instituto de Medicina Experimental sobre un total de 926 enfermos, estudian los tratamientos efectuados considerando en primer término la radioterapia, y el radium, para detenerse, en vista de los pocos éxitos obtenidos con estos procedimientos, sobre el tratamiento electroquirúrgico.

Como conclusión y teniendo en cuenta la cifra de los numerosos casos tratados terminan manifestando: "queda sentado, para nosotros, que el método electroquirúrgico es de elección en esta localización de las neoplasias, y que con él se ha consequido un sensible mejoramiento de los resultados ya que de nuestra experiencia surge que se puede obtener un 50 por ciento de curaciones de más de 5 años. Esa cifra se refiere a 261 enfermos operados por nosotros, con una mortalidad operatoria de 2 por ciento, lo que

*Se ha omitido una voluminosa bibliografía por falta de espacio.

es el mejor elogio que se pueda hacer del procedimiento."

Выводы

На основании своего опыта лечения рака прямой кишки, авторы пришли к заключению, что электрохирургия является лучшим методом лечения етого заболевания. Этот метод применялся у 261 больных в течении 5 лет; из 50% оперированных таким способом больных, 2% окончились смертью.

DOMINIQUE-JEAN LARREY

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on yellow fever, epilepsy, cholera morbus, syphilitic chorea and plica polonica. The *débridement procedure*, supposedly a new method in 1914, was found later to have been devised by Larrey in 1814. The *Labarraque solution* employed by Larrey a century ago became the *Dakin's solution* of 1914. His diagnostic skill was marvelous. Larrey was the first surgeon to incise the pericardium. Larrey divided head injuries into two classes: those in which trephining is indicated and those in which it is not. He wrote extensively on hernia of the brain. Until his time all bladder wounds were considered fatal. Larrey pointed out that the bladder is rarely injured when empty or if it is penetrated at the upper part where it is not covered by the peritoneum.

To sum up Larrey's greatest surgical achievements, they are: (1) the "flying ambulance"; (2) use of salt solution in simple cases and Labarraque's solution in infections; (3) abandonment of greases, oils and elaborate dressings; (4) avoidance of "meddlesome surgery"; (5) avoidance of unnecessary dressing of wounds; (6) insistence of plenty of rest; (7) immediate amputations; (8) insistence on early hospitalization of wounded; and (9) insistence on plenty of rest for the patient.

The subjoined letter of Larrey represents a book review of *"Pharmaceutical Pandects."* The book is described by Larrey and other members of his committee as being composed of a "history of pharmacy and embodies the administrative regulations which were in force in former times as well as the laws in force at present." The committee is laudatory about this opus, which it regarded as "sources of enlightenment for pharmacists during their civil and military career, as well as in every circumstance where their intervention is judged necessary. . . . This book forms in its various aspects a very useful compilation to consult." The committee further approves this work and advises the Minister to subscribe for copies to be distributed in hospitals and for teaching purposes.

Larrey's versatility is remarkable. His contributions to trench-foot, amputations, granular conjunctivitis, etc., certainly bespeaks that he did not have a one-track mind. His practice of wound excision compared with modern teachings of *débridement* is noteworthy, as are also his thoughts on "flying ambulances," the precursors of modern advances of transportation of casualties to and from the theater of action. While they were crude in comparison, nevertheless the warfare of yesteryear was crude indeed as compared with the mechanically refined warfare of today.

That Larrey was much respected and his advice sought in matters outside the field of medicine by the humble, near-great and great is evident. A letter of interest in this connection is one from

(Continued on page 234)

Transplantation of Omentum in Closure of Cerebro-Spinal Fluid Fistula

FELIX MANDL, M.D., F.I.C.S.*
JERUSALEM, PALESTINE

ON July 10, 1939, a man 48 years of age was brought to the hospital with a tangential gunshot injury of the right frontal and parietal bones of the skull.

Examination revealed that the bone was destroyed and the brain slightly prolapsed. There was a defect in the skin. The x-ray film showed a fracture of the skull-cap, accompanied by fissures extending to the right, toward the parietal bone. The general condition was good. There were no changes in the cranial nerves. Blood pressure was normal. The sensorium was slightly troubled. No symptoms of brain pressure were present.

Trepanation was performed immediately and the bone splinters which had penetrated into the brain were extracted. The bone was removed until healthy and uninjured dura was reached. Thus there resulted a defect about the size of an egg. After débridement of the skin and formation of a flap, a primary closure of the wound was rendered possible. A gauze strip led out of the skin. However, the primary wound closure did not remain firm. The skin wound opened and a brain prolapse developed. In order to reduce the latter in size, lumbar punctures were made. Vaseline gauze dressings were applied.

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On August 1, a cerebrospinal fluid fistula appeared which contained great quantities of liquid, necessitating repeated changes of dressing and use of a number of procedures to prevent its loss. A lumbar puncture was made every day and the patient given intravenous injections of hypertonic solutions. He was put on a dry food diet.

There was no possibility of draining the fistula liquid, since it oozed diffusely from the prolapse. In the course of the following days the temperature rose to 39° C. and then oscillated between 38° and 39° C.

On August 6, a piece of omentum was grafted on the brain prolapse in those places from which the liquid was discharged. On August 7, the quantity of discharged liquid was distinctly reduced, and by the following day the discharge had completely stopped.

When the dressing was changed, the omentum was seen to be well nourished in the places covering the fluid fistula, having formed adhesions with the brain there. Farther from the fistula, the omentum had become necrotic. Vaseline gauze dressings were renewed daily. The blood culture was negative, the liquid culture sterile. The temperature fell gradually. While lumbar punctures were continued, the brain prolapse gradually receded.

On September 10, the patient was re-

leased in generally good condition, but with a slight moria.

A traumatic cataract developed in the right eye of the patient, but in the beginning of 1940 he was able to work.

In order to close the skull defect, a bone graft was successfully performed in 1942.

COMMENTS

The danger of a fluid fistula is well known. In many cases of brain injury the fistula causes meningitis. Closure of the fistula is frequently recommended, either with the help of measures similar to ours, or by plastic operations. Olivercrona recommends drainage of the fistula and closure after the formation of a canal. This proposal was impracticable in our case, because there were no soft parts at our disposal for the closure.

Halstead, Baumann and others recommend a fat tamponade for the closure of the ventricles, but I preferred a transplantation of human omentum for the closure of the fistula. I was unable to find in the literature reports of closure of cerebro-spinal fluid fistulas with omentum.

SUMMARY

In a case of fluid fistula after a gunshot injury of the brain, the closure of the fistula was effected within forty-eight hours through transplantation of omentum.

BIBLIOGRAPHY

Baumann, Ernst: Schweiz. med. Wchnschr. *55*:300-301, 1925.

Halstead, Albert E., and Caylor, Harold D.: J.A.M.A. *82*:1337, 1924.

Olivercrona, cited by Bier, August; Braun, Heinrich, and Kümmell, Herman: *Surgical Technique*, Barth, Leipzig, 1933.

SUMARIO

El autor presenta un caso de fistula del líquido cerebro-espinal, resultando de un daño de tiro de fusil (balazo), en el cual la fistula fué completamente cerrada por medio de transplante de omentum en cuarentaiocho horas.

Este método de cerrar se recomienda en casos en qué drenaje y sutura, donde existe un canal fistular, no es practicable por tamponade de tejido adiposo.

RÉSUMÉ

L'auteur présente un cas de fistule cérébro-spinale résultant d'une blessure par arme à feu. Quarante-huit heures après l'infliction de la blessure, la fistule fut fermée avec succès par l'implantation d'une greffe prise de l'épiploon. Cette méthode est recommandée dans les cas où le drainage et la fermeture, après formation du canal fistuleux ou le tamponage par tissu adipeux, sont indésirables ou impractibles.

Выводы

Приводится описание случая ликворного свища после ранения позвоночника. Ликвидация свища была достигнута трансплантацией сальника. Этот метод автор рекомендует для тех случаев, когда другие способы по тем или иным причинам нежелательны и не выполнимы.

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Archivos Argentinos de Tisiología (Buenos Aires) Tomo XIX, No. 4, Oct.-Dec., 1943.

Boletín del Instituto de Clínica Quirúrgica (Buenos Aires) Año XIX, No. 160, Sept., 1943.

La Revista de Medicina y Ciencias Afines (Buenos Aires) Año 5, No. 12, Dec., 1943.

Revista Argentino-Norteamericana de Ciencias (Buenos Aires) Año I, Nos. 5 and 6, Sept. and Oct., 1943.

Revista Oto-Neuro Oftalmológica y de Cirugía Neurológica Sud-Americana (Buenos Aires) Tomo XVIII, No. 12, Dec., 1943; Tomo XIX, Nos. 1-2, Jan.-Feb., 1944.

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La Raqui-Analgesia Generalizada*

(The Generalization of Spinal Anesthesia)

DARIO FERNANDEZ FIERRO, M.D., F.A.C.S., F.I.C.S.
MEXICO, D. F.

SUMMARY

A study is made of the evolution of generalized spinal anesthesia. The author describes his personal technic and points out how it differs from other methods. He mentions 1,500 operations on the head, neck and thorax which he has performed successfully according to this technic.

DESDE 1908, iniciación de mis estudios quirúrgicos, comencé y he seguido hasta la fecha el estudio de la raqui-analgesia generalizada, sirviendo mis investigaciones para las tesis que he patrocinado, y el fruto de 30 años de investigación es el que tengo el honor de presentaros.

No haré un estudio completo de la raquia, únicamente voy a hacer algo de historia para fundar mis derechos de prioridad y decir algunas de las bases que me sirvieron para llevar a cabo mi procedimiento.

En "La Presse Medicale," N° 90, sábado 9 de noviembre, pág. 265, año de 1901, Chaput escribió un artículo sobre la raquia: "La anestesia general o muy extendida, obtenida por la raquicocainización."

En cuyo artículo dice:

"Actualmente la mayor parte de los autores familiarizados con la cocainización lumbar, admiten que es utilizable para las operaciones sobre los miembros inferiores, la pelvis y la región inferior del abdomen. Algunos, como Tuffier, la emplean para todas las laparotomías, para las operaciones torácicas y para las de los senos.

"Participo de las ideas de Tuffier relativamente a las operaciones sobre el abdomen y el tórax, he hecho varias veces pilorectomías, gastro-entero-anastomosis, amputación del seno y resecciones de las primeras costillas con gran satisfacción. Creo, además, que el método de Tuffier es facilmente aplicable a los miembros superiores y que será, quizás en ciertos casos, utilizable para las operaciones sobre la cabeza.

"He hecho en estos últimos tiempos, tres operaciones importantes sobre el miembro superior bajo raqui-cocainización.

"En el primer caso, se trata de una resección del codo en una mujer de 15 años. La dosis inyectada fué de 3 cgrms. la anestesia invadió el miembro superior en nueve minutos, se generalizó a todo el cuerpo en veinticinco minutos. No hubo vómitos, el pulso no pasó de 120. Las secuelas fueron sencillas, con excepción de una cefalea que duró algunos días y

*Presented at the Third International Assembly of the International College of Surgeons held in Mexico City, August, 1941.

cedió a una inyección de morfina. Esta observación ha sido comunicada a la Sociedad de Cirugía.

"En el segundo caso, hice la resección del olécrano por fractura complicada e infectada. Dosis 0.035 grm. La analgesia del miembro superior vino en once minutos, ni nauseas ni vómitos; el pulso no pasó de 92. Como secuelas sólo una cefalea de 24 horas.

"En un tercer caso practiqué la desarticulación del puño por una artritis purulenta, consecutiva a una sinovitis de las vainas; el enfermo presentaba una albuminuria muy intensa. Inyecté 4 cgrms. de cocaína, la anestesia no fué completa sino hasta la tercera costilla. Fué mediocre en el miembro superior, y el enfermo se quejaba muy vivamente. Notemos sin embargo, que el enfermo no gritaba sino débilmente y no se contraía sino muy poco. Es cierto que la cocaína ha facilitado mucho la operación y que sin ella hubiera sido imposible, sobre todo en un enfermo nervioso y miedoso; añadiré que la cocaína empleada en este enfermo era una solución isotónica mucho menos activa que la solución acuosa, como lo veremos. También refierá Chaput, tres operaciones practicadas arriba del tórax, una en el cuello y otras dos al nivel del maxilar inferior. De los resultados obtenidos concluye que la analgesia en la cabeza y en el cuello no había sido satisfactoria puesto que el paciente sentía algo de dolor. El hacía constar que la cocaína causa cierta angustia en parte porque el paciente oye todos los detalles de la operación y que, la anestesia espinal presenta dificultades cuando se trata de la analgesia alta porque aparece lentamente, grandes dosis de cocaína son necesarias. Y concluye Chaput que (1) que la anestesia total puede ser obtenida por medio de la inyección de cocaína; (2), para asegurar la anestesia de las extremidades superiores, 4 cgrms. de cocaína deben ser usados; (3), la anestesia en la cara y en el cuello no es suficiente para permitir operaciones en estas regiones, en parte por la emoción producida en el paciente por las manipulaciones operatorias; solamente cuando la anestesia general por narcosis y la anestesia local estén contraindicadas, se empleará la anestesia espinal para operaciones en la cabeza; (4) la solución isotónica produce anestesia menos efectiva que la solución acuosa, porque es menos difusible que la última.

En 1901, Tait y Caglieri relatan la inyección de cocaína al nivel del sexto espacio cervical en seis casos, sin malos resultados.

En 1901, Morton reseca el maxilar superior, bajo anestesia espinal.

En 1901, Morton relata 253 operaciones bajo anestesia espinal, 8 de las cuales fueron hechas arriba del diafragma. Más tarde relata otra serie de 61 operaciones, 55 de las cuales fueron hechas en la cabeza o en las extremidades superiores.

Le Filiatre, en 1918, publicó un método ideado en 1902, y que consiste en puncionar en el espacio sacro-lumbar y sacar una cantidad variable de líquido céfalo-raquídeo, según la altura a que se desee llevar la anestesia; 25 c.c. para anestesiar al nivel de los pezones y 30 c.c. para anestesiar la cabeza e inyectar 1 c.c. de solución de cocaína al 1½ por ciento para operar en las piernas, 2 c.c. para la región sub-umbilical y 3 c.c. para anestesia general, practicando el barboteo o agitación del líquido céfalo-raquídeo por tres o cuatro veces (comunicado esto a la Academia de Cirugía el mes de julio de 1919).

En 1908, Jonnesco presenta un procedimiento de anestesia que consiste en puncionar a diversas alturas, según sea el nivel al cual se quiere llevar la anestesia, punción media-cervical, dorsal-superior, dorsal-media o dorso-lum-

bar y lumbar, usando como anestésico la estovaína con estricnina y cafeína. Los accidentes mortales que se presentaron en los casos de punción cervical y dorsal superior, hicieron abandonar este método.

M. Paul Delmas, profesor agregado a la Facultad de Montpellier, publicó en "La Press Medicale" de 14 de marzo de 1918 una modificación de técnica para obtener la analgesia general, empleando una jeringa de Lüer de 20 c.c. con cocaína 20 a 40 milgrms. y 20 c.c. de líquido céfalo-raquídeo, e introduciendo y rechazando con fuerza todo el contenido de la jeringa en el espacio aracnoideo sin repetir esta maniobra. Es en suma una inyección maciza y brusca, la punción la hace en el espacio lombo-sacro sentado el enfermo.

En diciembre de 1928, Koster en "The American Journal of Surgery," publica un artículo sobre anestesia espinal con referencia especial a su uso en cirugía de cráneo, cuello y tórax (procedimiento traído por el Dr. Ignacio Millán).

En 1924, Koster comenzó a usar la raqui-anestesia para operaciones infradiafragmáticas, y usaba la novocaína 100 milgrms., previa inyección de morfina y atropina, disuelto en 4 c.c. de líquido céfalo-raquídeo, haciendo la inyección al nivel del segundo espacio lombar, con el enfermo en decúbito lateral (generalmente izquierdo), obteniendo anestesias que llegaban hasta el nivel de los pezones; tratando hacer más duradera la anestesia, aumentó la dosis de anestésico a 20 cgrms., y la cantidad del líquido céfalo-raquídeo a 8 c.c., poniendo *después* al enfermo en posición de Trendelemburgo, 8° o 10° de inclinación, descubriendo casualmente que su enfermo estaba totalmente anestesiado. Koster no teme a la hipotensión, pues según dice: *la posición de Trendelemburgo le pone a salvo de cualquier accidente; no le preocupa la palidez, los sudores, ni el enfriamiento, considerando todo esto como natural en las anestesias altas; frecuentemente, según él, se presentan vómitos, la respiración es casi diafragmática, regular, lenta y disminuída en amplitud.* No aconseja ningún medicamento para aumentar la tensión arterial. No encuentra más contraindicación para la raqui-anestesia que la infección local al nivel del lugar donde se hace la punción. En cuanto a los fracasos en número de 4 que ha tenido, después de un estudio cuidadoso, no lo encuentra achacable al procedimiento de la raquia.

Labat, en 1930, presentó una técnica que es la siguiente: Previa inyección de morfina y escopolamina antes de la operación, punciona al enfermo entre la doceava dorsal y la primera lumbar para operaciones arriba del diafragma. Posición: sentado el enfermo, *Trendelemburgo inmediatamente después de la inyección, sosteniendo dicha posición aún 3 horas o más después de la operación.* No pone medicina para aumentar la tensión. Usa la novocaína francesa o neocaína, en 8 c.c. de 10 a 20 cgrms., agitando la inyección en las operaciones arriba del diafragma. *Rara vez se presenta la anestesia general con este método, dice Labat, considerando, pues, la generalización como un incidente.*

Vehers, en 1931, hizo estudios para determinar la dosis de novocaína necesaria para obtener la anestesia en la cabeza, sin causar la parálisis de los centros cardiacos y respiratorios, llegando a la conclusión que estos centros son los más resistentes a la acción de la novocaína, lo que hace la seguridad de la raquia generalizada. Y que la misma dosis inyectada y tolerada por vía medular, no lo es si se inyecta directamente en la cisterna magna. *El cree que la posición de Trendelemburgo es indispensable para evitar la anemia cerebral.*

Técnica de Vehers: decúbito lateral,

punción en el segundo espacio lumbar, 20 a 24 cgrms. en 3 c.c. diluída en 6 c.c. *La posición de Trendelemburgo se le da inmediatamente después de la inyección (10°), mantenida de 4 a 24 horas después de la operación.* "Las raíces motoras de la región dorso-lumbar y las raíces sensitivas de la médula y del cerebro, bajo la acción de la novocaína, a los 10 minutos permiten operar en cualquier parte del cuerpo." (Vehers).

Maxssonn dice: "160 milgrms. igualmente inyectados en el sexto espacio dorsal producen bloqueo sensorial de todo el cuerpo y bloqueo motor debajo de la sexta dorsal, dando origen a la anestesia general."

Pitkins dice (1927): "Disolviendo la novocaína en el líquido céfalo-raquídeo, he obtenido dos casos con anestesia completa." Concluyendo: "Que la posición dada *inmediatamente después de la inyección, hace generalizar la raquia, y que la posición asegura la circulación a un grado suficiente para sostener la vida en los diferentes casos.*"

Como se podrá observar, después de haber pasado revista a todos estos procedimientos, que unos se basan en la altura de la punción y de la inyección (Tait y Caglieri, Morton, Jonnesco), estos procedimientos han sido hasta la fecha abandonados, pues causaron varias muertes; otros como el de Le Filliatre, disminuyen la tensión del líquido céfalo-raquídeo, método que apliqué frecuentemente (lo mismo que los anteriores), y que si bien no tuve accidente que lamentar, algunas veces no permitía con seguridad obtener la anestesia generalizada; el método de Delmas no dió los resultados que su autor señala y que está basado sobre todo en la rapidez de la inyección; quedan los procedimientos cuyo fundamento radica en la influencia de la posición de Trendelemburgo, *dada inmediatamente después de la inyección* (Pitkins 1927), (Koster 1928), (Labat 1930), (Vehers 1931), tanto para que se difunda la substancia analgésica (según dichos autores), como para evitar la anemia cerebral, considerándolo algunos, indispensable desde este punto de vista para evitar un fracaso.

La observación diaria de los enfermos, desde los albores de la raquia, me han demostrado que aquellos a quienes se dá posición de Trendelemburgo *inmediatamente después de la inyección,* no se les generaliza la anestesia; es cierto que hay casos en los cuales se ha generalizado, pero son raros, no pudiendo servir como técnica segura.

Desde los estudios de Chaput he estudiado la influencia de la inclinación del enfermo *dada antes* unas veces, y *otras después de la inyección,* llegando a las conclusiones consignadas en las Tesis de Rodarte (1918) y de Garza Cantú (1935), de *que es necesario dar primero al enfermo una inclinación de 45°* y en esa situación inyectar la solución anestésica, *para que se generalice con seguridad.*

En cuanto a la posición de Trendelemburgo, tan recomendada por la mayoría de autores, como el secreto para evitar la muerte del enfermo, únicamente diré que meditando en lo que observamos diariamente, de que después de una operación que ha durado X tiempo, tan pronto se termina de operar se le quita la posición de Trendelemburgo, sin que hasta la fecha se nos haya presentado un accidente por semejante causa; ésta y algunas consideraciones que en próxima comunicación haré, me han hecho admitir que la posición de Trendelemburgo no tiene más importancia que para generalizar la anestesia, *siempre y cuando se dé dicha posición antes de inyectar el anestésico,* pero nunca darla después.

TÉCNICA DE DARÍO FERNÁNDEZ FIERRO

Por ahora voy a dar a conocer mi técnica, procurando hacer resaltar los

detalles que la diferencían, de los demás procedimientos, para dejar bien demostrado que es diferente de las otras, y por ende un método nuevo, no descrito y cuya paternidad me pertenece.

Punción: La punción puede practicarse ya sea en decúbito lateral derecho (Fig. 1) o izquierdo, y en algunas ocasiones, cuando por circunstancias especiales se dificulta la punción o hay poca costumbre de hacerlo en tal posición, *se puede hacer estando sentado el enfermo, y después darle la inclinación necesaria antes de inyectar el analgésico, sin que tal maniobra encierre algún peligro.*

Fig. 1. Nivel de la punción.

Nivel de la punción: Acostumbro hacerlo entre la cuarta y la quinta o entre la tercera y la cuarta lumbares. (Fig. 1).

Preparación de la solución: Se prepara una solución de 0.20 cgrms. de novocaína Bayer hecha en 10 c.c. del líquido céfalo-raquídeo, para lo cual se pueden disolver dos ampolletas de 0.15 cgrms. en 3 c.c. del líquido céfalo-raquídeo, tomar 2 c.c. de dicha solución, con lo cual tenemos los 0.20 cgrms. de novocaína en 2 c.c., a los cuales añadimos 8 c.c. del líquido céfalo-raquídeo, con lo cual se tiene la solución que necesitamos.

Posición para la inyección: En este momento es cuando se dá al enfermo la inclinación de 45°, *antes de inyectar.* (Fig. 2). Esto es capital en mi método y lo diferenció de los otros precedimientos.

Fig. 2. Posición para la inyección.

Inyección: Habiendo dado previamente al enfermo la inclinación de 45° se practica la inyección. Después de hecho esto, se prepara el campo operatorio, y cuando todo está listo se quita el Trendelemburgo para operar en la posición que se desee, no concediéndole yo ninguna importancia como cuidado operatorio o post-operatorio para prevenir accidentes. Terminada la operación el paciente es llevado a su lecho guardando la posición horizontal por algunas horas, no siendo esto indispensable, y sólo cuando se presente algo de cefalea, con dicha posición se les quita.

Las operaciones que he practicado de diciembre de 1934 a agosto de 1941, sin tener un sólo accidente, son las que a continuación se citan:

Tiroidectomías.
Amputaciones de seno.
Lobectomías.
Neumotomía.
Toracoplastías.
Intervenciones quirúrgicas en el maxilar superior.
En el maxilar inferior.

Uranoestafilorrafias y plastías de la cara.
Extirpaciones de tumores de la parótida.
Faringectomía.
Extirpaciones de tumores del cuello.
Craniectomías.
Extirpaciones de tumores de la órbita.
Intervenciones en el miembro superior.
Enucleación de ojo.
Esofagoplastías.
Vaciamiento petro-mastoideos.
Simpatectomías cervicales.
Ligadurias de carótida.
Intervenciones en la cavidad bucal.
Tratamiento de cicatriz viciosa del cuello.
Extirpación de tumor tímico.
Operaciones en total.

En próxima comunicación completaré el estudio, por ahora incompleto, procurando dar la fisiología, las indicaciones, contraindicaciones, etc., pues mi intención por ahora es, como al principio dije, fundar la prioridad de mi procedimiento.

RÉSUMÉ

On fait une étude de l'évolution de l'anesthésie rachidienne généralisée. On décrit la technique personnelle de l'auteur, et on indique en quoi cette technique personnelle diffère des autres. On classifie 1,500 operations de l'auteur, sur la tête, le cou et le thorax, dans lesquelles il eut recours à sa méthode.

SUMARIO

Se hace un estudio de la evolución de la raqui-analgesia generalizada. Se describe técnica original del autor y se llama la atención sobre la diferencia existente entre dicho método y los demás. Se anotan 1,500 operaciones de cabeza, cuello y tórax, que el autor ha efectuado de conformidad con su técnica.

Выводы

Автор, касаясь развития техники спинно-мозговой анестезии, описывает предлагаемый им метод. Последний был успешно применен в 1500 операциях на голове, шее и гортани.

ACKNOWLEDGMENTS

(Continued from page 220)

Revista de Sanidad Militar (Buenos Aires) Año XLII, Dec., 1943; Año XLIII, Jan., 1944.

Bolivia

Gaceta (La Paz) Vol. I, Nos. 2 and 3, Aug. and Dec., 1943.

Brazil

Anais Paulistas de Medicina e Cirugía (São Paulo) Vol. XLVI, Nos. 4 and 5, Oct. and Nov., 1943.

Arquivos Brasileiros de Cirugía e Ortopedia (Recife) Tomo XI, No. 1, 1943.

Arquivos de Cirugía Clínica e Experimental (São Paulo) Vol. VII, No. 5, Oct., 1943.

Boletim do Sanatorio São Lucas (São Paulo) Vol. V, Nos. 4 and 5, Oct. and Nov., 1943.

Brasil-Médico (Rio de Janeiro) Año LVII, Nos. 40-52, Oct., Nov. and Dec., 1943.

Gazeta Clínica (São Paulo) Año XLI, Nos. 9 and 10, Sept. and Oct., 1943.

Litíase do Apêndice. Eurico Branco Ribeiro. Sociedade Editora, Medica Limitada, São Paulo.

O Hospital (Rio de Janeiro) Vol. 24, No. 5, Nov., 1943; Vol. 25, No. 1, Jan., 1944.

Publicacões Medicas (São Paulo) No. CXL, Aug., 1943. Indice Geral. Año XIV, Nos. 132-139, Aug., 1942-July, 1943.

Revista Brasileira de Ortopedía e Traumatología (Rio de Janeiro) Vol. IV, Nos. 5 and 6, Sept.-Dec., 1943.

Revista Brasileira de Tubereulose (Rio de Janeiro) Año XII, Nos. 89 and 90, Sept.-Oct. and Nov.-Dec., 1943.

Revista Clínica de São Paulo (São Paulo) Vol. XIV, Nos. 2, 3, 4 and 5, Aug., Sept., Oct. and Nov., 1943.

Revista de Ginecologia e d'Obstetricia (Rio de Janeiro) Año XXXVII, Tomo II, Nov., 1943.

Revista Medico-Cirúrgica do Brasil (Rio de Janeiro) Año LI, Nos. 11 and 12, Nov. and Dec., 1943.

Canada

Bulletin of the Vancouver Medical Association (Vancouver, B. C.) Vol. XX, No. 5, Feb., 1944.

Chile

Revista Chilena de Higiene y Medicina Preventiva (Santiago de Chile) Vol. VI, No. 1, June, 1943.

Revista de Medicina (Valparaiso) Año XVII, Nos. 5, 6 and 7, Dec., 1943, and Jan. and Feb., 1944.

Colombia

Medicina y Cirugía (Bogotá) Vol. VIII, Nos. 5 and 6, Jan. and Feb., 1944.

(Continued on page 247)

On the Occurrence of Pseudotumors in the Synovial Membrane of the Knee Joint*

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JERUSALEM, PALESTINE

THE surgeon is confronted with a great amount of diagnostic as well as therapeutic difficulty in chronic affections of the knee joint. Particularly rare conditions are the intra-articulary tumors and tumorlike growths. Although in the literature a number of fibromas, lipomas, chondromas, myxomas, angiomas, etc., of the knee joint have been reported (Strauss,[22] White,[26] Lewis and Geschickter,[9] Eggers,[6] Bertelsmann[2] *et al.*) these formations cannot be considered as articular diseases in the strictest sense, since they take their origin from osseous, cartilaginous or fibrous tissue, and it is merely their localization that connects them with the knee joint.

Actual articular tumors are, therefore, those growths which arise from the synovial membrane. The number of these genuine tumors reported is very small, and opinions differ extremely as to their histopathologic classification, which is, however, of only secondary importance to the clinician. We therefore refer the reader to the excellent detailed publications on this subject by King,[10, 11] Berger[1] *et al.*, in which these problems are discussed from the pathologic viewpoint.

Considering the fact that genuine as well as pseudoblastomatous processes developing on the synovial membrane of the knee joint occur very rarely, and that their diagnosis and treatment may become important in the clinical field, too, we are reporting on two cases of this kind which we recently had the opportunity of observing.

CASE REPORTS

Case 1. The patient, an agricultural worker, aged 17, came from a healthy family and had always been healthy himself. Two years previously, following rather unusual exertion during his work, his left knee joint suddenly became painful and swollen and could be moved only with difficulty. Particularly troublesome was a sensation of weakness while walking. There was no temperature nor general symptoms of any kind. An effusion into the knee joint was diagnosed. Each puncturing (about fifteen in all) brought forth a considerable amount of brownish yellow fluid. It was assumed that a fungus might be present. The patient was therefore put into a plaster dressing. The condition slightly improved under physical therapy. For about one year the patient was able to work again. Then the knee joint began to swell again, this time without pain. He was admitted to a hospital, where a diagnostic excision was carried out. A malignant tumor being diagnosed, amputation of the leg was suggested. The patient, however, refused to have his leg re-

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moved. After another few diagnostic excisions, the results of which remained doubtful, he was admitted to our department.

State on Admission. The patient showed the development corresponding to his age. Heart and lungs were healthy, there being no symptoms suggestive of tuberculosis. Temperature was normal. His left knee joint was markedly distended, particularly in the area of the upper recess. (Circumference above the patella was 37.5 cm. as against 34 cm. on the normal side.) There was a definite effusion with fluctuation. The area of the articular space was tender and gave pain on flexion. Active movements could be executed only to a limited extent. There was, moreover, marked atrophy of the quadriceps. Roentgenograms showed nothing abnormal. Aspiration revealed a dark brown fluid which proved to be sterile. The animal experiments were negative. After aspiration the swelling of the region of the upper recess remained almost unchanged, and palpation showed cushion-like elasticity with pseudofluctuation. Diagnosis: synovitis villosa.

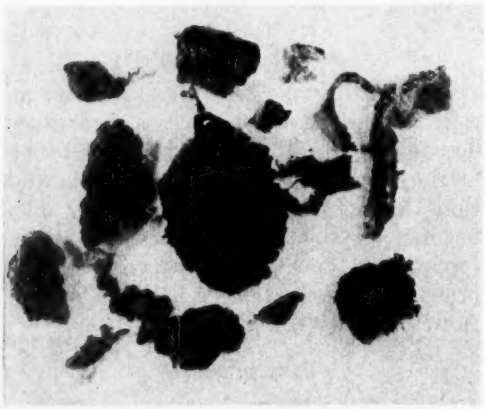

Fig. 1. (Case 1) View of entire surgical specimen.

Operation (F. Mandl). Medial parapatellary arthrotomy was carried out under spinal anesthesia. After the articular capsule had been opened, a large quantity of dark brown viscous fluid welled up. The synovial membrane was found to be thickened to many times its normal size; was dark brownish red in color, hemorrhagic and almost entirely covered with masses of proliferated brownish villi of various sizes and shapes. The articular surfaces as well as the semilunar cartilages and the ligaments were in absolutely normal condition. The villous proliferation and the synovial membrane were radically removed, the joint closed and placed on a plaster splint.

On the eighth day after operation, the splint was removed. The wound had healed by first intention. The knee joint was then exercised, and after-treatment with roentgen rays was given. On the seventeenth day after the operation the patient was dismissed with his knee joint restored to normal function (110° of flexion were possible) and no further symptoms.

After six months follow-up examination showed no effusion, no swelling, no pain; the motility of the joint was in perfect order, and the patient was able to work. Eighteen months after the operation another follow-up examination showed that the patient was absolutely without trouble, and that the muscular atrophy had also disappeared.

Histopathologic Examination. The extirpated specimen consisted of a number of tissue fragments varying in size and thickness, brownish-yellow intermingled with some lighter patches (Fig. 1). The surface facing the interior of the joint was markedly villous in its structure, almost resembling a placental surface. The villi had a multilayered epithelial cover. The stroma consisted of a rather coarse-meshed fibrous structure containing a great number of blood vessels, lymphocytes and plasma cells, and in addition an iron-containing pigment. In the wider villi there were some islets of lighter cells, the nuclei being centrally situated and rich in chromatin, with a finely honeycombed protoplasm. In all of the villi a dark brown pigment was present, surrounded by giant cells.

In this case we were considering an inflammatory hypertrophic process of nonspecific nature, taking its origin from the synovial membrane.

Case 2. The patient, a woman aged 32, came from a healthy family. Twelve years previously she had had frequent tonsillitis and about two years later a severe attack of articular rheumatism, localized particularly in the knee and wrist joints. On these grounds, tonsillectomy was performed, and she had no

trouble for three years. Seven years previously the symptoms of both knee joints reappeared, particularly on the right. After two years the right knee joint became swollen and she had severe pain, but no temperature. The doctor diagnosed an effusion into the knee joint and gave physical treatment but with no particular success.

About four years ago aspiration therapy of the joint was started. A total of thirty punctures were made, and 100-200 cc. of hemorrhagic fluid was aspirated at a time. No improvement followed this procedure. The joint became swollen again and again with great pain, so that the patient could not move the knee. Roentgenograms revealed no pathologic findings. Two years previously she started running a subfebrile temperature. Roentgen-ray examination of the lungs was normal. Large medial arthrotomy was carried out, since an injury to the semilunar cartilage was assumed to be present. The

Fig. 2. (Case 2) General aspect of the knees (see text for explanation).

medial cartilage was apparently removed. After the operation the swelling decreased and the patient felt better. After six months, however, the old trouble reappeared. Aspiration. physical therapy, roentgen-ray treatment gave no results. Eventually the patient was admitted to our department.

State on Admission. The patient was in a good general condition (habitus asthenicus). The lungs were normal. The heart gave a loud presystolic murmur over all orifices. The blood pressure was 130/85. The blood picture, the sedimentation rate and urinalysis were all normal. The temperature was normal. The right knee joint was markedly swollen, particularly in its upper portion. The upper recess was especially involved (Fig. 2). There was a diffuse, cushion-like swelling with pseudofluctuation. Even after aspiration of the fluid, the distension did not lessen. The aspirated fluid was brownish red, viscous and proved to be sterile. On the medial side there was an old operation scar about 20 cm.

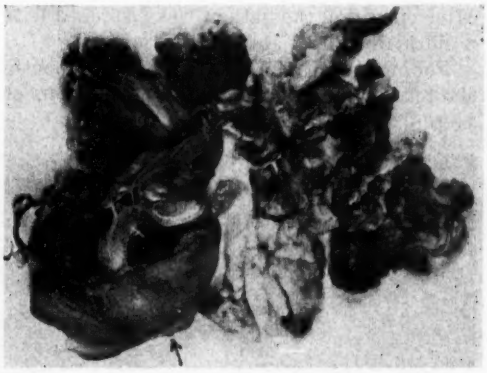

Fig. 3. (Case 2) View of entire surgical specimen.

long. Circumference of the joint above the patella was 38 (34) cm., below it 34 (31) cm. Active as well as passive movements were only slightly hampered. There was moderate atrophy of the quadriceps muscles. Roentgenograms revealed no pathologic changes of the various portions of the joint. Diagnosis: synovial tumor.

Operation (F. Mandl). Medial arthrotomy under spinal anesthesia was performed in the situation of the old S-incision. The skin as well as the synovia proved to be very thin, owing to the permanent presence of an effusion. Then the articular cavity was opened and the patella flapped open. There appeared a tumor nearly the size of a fist, of brownish yellow color, originating from the synovial

membrane of the upper recess, which was completely filled by it, and protruding into the articular cavity. The growth was firmly fixed to the synovial membrane over a wide area so that it could not be extirpated without removing, at the same time, the whole of the synovial membrane of this region. Distal to the tumor the synovial membrane showed dark brown discoloration, marked fraying and, in some places, villous formations. That part of the synovial membrane which showed these changes was excised together with the tumor. The joint was then closed with a multilayered suture, and a splint dressing was applied.

After ten days the splint was removed. The wound had healed by first intention. Knee exercises were started when the patient was out of bed, and after-treatment with roentgen rays was given. On the twenty-eighth day after operation the patient was dismissed with a normally functioning knee joint.

Follow-up examination after six months showed no trouble whatever, no effusion, no muscular atrophy.

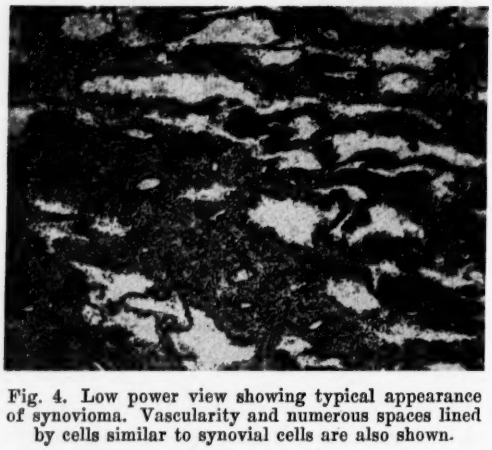

Fig. 4. Low power view showing typical appearance of synovioma. Vascularity and numerous spaces lined by cells similar to synovial cells are also shown.

Histopathologic Examination (Dr. Ungar*). The extirpated specimen was a soft saclike formation the size of a mandarin, representing the entire synovial membrane of the upper recess, from the articular surface of which the tumor had developed (Fig. 3). The tissue was soft and of a brownish yellow color. On the cut surface there were yellowish foci of indefinite size, irregularly distributed.

Microscopically, the tissue proved to be rich in cells as well as arterial and venous blood vessels. Rather large cavities, though of varying size, were irregularly scattered throughout the tissue. Into the lumina of some of them papillary formations projected (Fig. 4). They were lined by endothelium, the cells of which were similar to those of the synovial membrane itself, though frequently of a higher type. In no place was any communication between the above-described cavities and the surface of the synovial membrane to be found.

Generally, the cells of this tissue belonged to three groups:

1. Histiocytelike elements, as usually found in synovial membranes of the type rich in cells (Fig. 5).

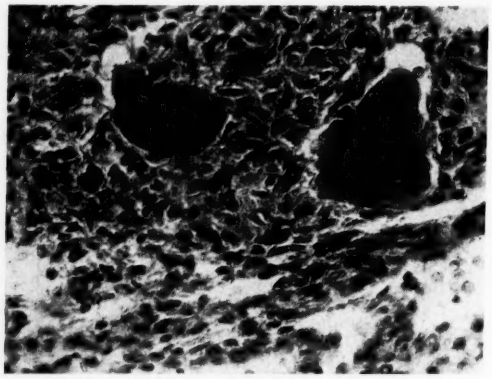

Fig. 5. Showing the histiocytic character of the elements and giant cells of nonspecific type under high power.

2. Foam cells, in the protoplasm of which were imbedded lipoidlike substances stainable with sudan III. There were rather large groups of these cells, corresponding to the yellowish foci which had been apparent to the naked eye on the cut surface (Fig. 6).

3. Some single giant cells (Fig. 5) containing two to six irregularly distributed nuclei (no resemblance to osteoclasts). All these cell types were imbedded in a stroma consisting of fine fibrils, becoming denser and thicker around the blood vessels. In these areas a good number of the above-described cell types were found as far as the immediate neighborhood of the adventitia of the blood vessels.

*I am greatly indebted to Dr. H. Ungar and Dr. Gelley, Pathological Institute of the Hadassah University Hospital (Director, Professor Franco), for the histopathologic findings and the microphotographs.

There were no signs of rapid growth (mitoses, polymorphia). It was impossible to decide whether it was a hyperplastic or neoplastic process we were dealing with.

HISTOPATHOLOGIC ASPECTS

Although the two cases greatly resemble each other as to their clinical features, there are marked discrepancies in a histopathologic respect.

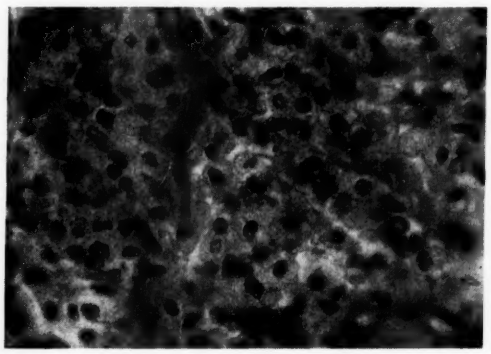

Fig. 6. Field under higher magnification from "yellowish areas" showing foam cells.

Case 1 without doubt comes under the heading of chronic inflammatory diseases of the synovial membrane. In the literature some similar cases are reported. Thus Dowd[5] described a case of "villous arthritis of the knee" in which histologic differentiation from a giant cell sarcoma was very difficult. The normal function of the joint was completely restored by extirpation of the synovial membrane.

"Polyarthritis chronica villosa" described by Schueller[20] is—as may be seen from the name—a polyarthritic process. It presents inflammatory hypertrophic proliferation of the synovia, producing villi and fringes, and is assumed to be of infectious nature. According to the information given by the author, this process invariably involves several joints simultaneously.

Koch,[13] describing "arthritis hemorrhagica chronica," also reported upon pathologic changes developing in the synovial membrane of the knee joint; villi formation, however, was completely absent.

Mandl[14, 15] reported on three cases of inflammatory chronic synovial affection of the knee joint which, clinically, also gave rise to a suspicion of the presence of a tumor. All three cases were cured by operation. In one of them a second operation had to be performed, as the symptoms recurred. A fourth case also belonging to this group was reported on by Schajowicz.[19]

Mandl introduced the term "synovitis villosa hemorrhagica chronica" for cases of this type. In our opinion, this term applies to our *Case 1.*

The classification of our second case is fraught with a greater amount of difficulty. The intricate nature of its histologic appearance makes it extremely difficult to decide whether it represents a genuine blastoma or an inflammatory hyperplastic process.

Looking for similar cases in the literature, we first of all come across the group of xanthomatous giant cell tumors formerly known as "benign xanthomatous giant cell sarcomas." These growths are by no means rare in the pathology of the synovial membrane, tendon sheaths and bursae, and their occurrence has been deemed a characteristic feature of these structures.

Much thought has been given to the so-called xanthomatous giant cell tumors of the synovial membrane of the knee joint, in a clinical as well as histopathologic respect, by a number of authors (Sonntag,[21] Frangenheim,[8] Broders,[4] Ely,[7] King,[10, 11] Tourneux,[24] Razemon and Bizard,[18] Morton,[16] Berger[1] *et al.*). Frequently as they are discussed, however, their etiology remains obscure. Several workers consider them the symptoms of a chronic disturbance of the cholesterin metabolism. Others believe

them to be genuine blastomas. Still others assume that they develop on the grounds of chronic traumatism, and think themselves entitled to call them "granulation tumors." According to Wegelin *et al.*,[25] they represent an inflammatory absorptive process resulting from trifling traumatous hemorrhages into the synovia. It is, as a matter of fact, generally known that xanthoma cells frequently occur in connection with inflammatory processes and that they are not found to appear as the elements of genuine blastomas. That giant cells are frequently met within inflammatory absorptive processes is a well-established fact.

Our *Case 2* presents, as a special feature, the presence of cavities (described in the histopathological notes; see also Fig. 5). These cavities are lined by an endothelial layer the cells of which resemble those of the synovial membrane. King[10, 11] also encountered cavities of this type in one case, describing them as "synovial spaces." Out of a series of eleven xanthomatous giant cell tumors of the synovial membrane, Berger[1] succeeded in one case only in finding these "synovial cavities." This author considers the presence of these formations as a definite histologic proof of the fact that the growth actually takes its origin from the synovial membrane and believes their occurrence to be an extremely rare event. According to Berger's classification, our *Case 2* (also that reported by King) should be considered as a "synovial histocytoma with predominating histiocytic features and of undetermined hyperplastic or neoplastic origin."

CLINICAL ASPECTS

Having discussed the histopathologic properties and discrepancies of our two cases, we now return to the clinical field. As to their histories, both patients were young, healthy individuals. In the first case it was a trauma, in the second a chronic rheumatic infection that preceded the onset of the knee affection. In both cases we find the chronic recurring articular effusion, reaccumulating after every attempt at aspiration. The aspirated fluid was of a serous-hemorrhagic nature and sterile in both cases. The knee joints were found particularly swollen in their suprapatellar regions, the circumference of the affected sides being larger than normal by several cm. Even immediately after aspiration the circumference of the joints, particularly in the region of the upper recess, remained considerably increased. Palpation of this area showed a cushion-like swelling with pseudofluctuation in both cases. The quadriceps muscles proved to be atrophic, which made the swelling of the upper part of the knee joint all the more evident (Fig. 2).

The joint motion was certainly reduced, though only to a comparatively small degree, and pain appeared only after long periods of walking. The articular capsule was tender on pressure. Temperature as well as general symptoms were completely absent. The roentgen-ray appearance showed no pathologic features. The clinical picture, therefore, had all the characteristics of a chronic synovial affection.

Differential diagnosis is fraught with a great amount of difficulty. In some of the cases of synovitis villosa reported upon in the literature the presence of a fungus was diagnosed, as was also the case with one of our patients. In some cases the presence of a tumor was suspected, while in others injury to the semilunar cartilages was thought possible, so that one of the cartilages was extirpated. Tuberculous articular processes, in our opinion, can easily be eliminated on the grounds of the general clinical appearance.

The presence of a meniscus injury may also be neglected, since there are no symptoms of locking or blockage, while there is, on the other hand, the cushion-like swelling. Synovitis villosa may, as a matter of fact, through the presence of pedunculated villi, produce locking of the joint, while predunculated synovial tumor may also give rise to the symptoms of blockage. Generally, however, meniscus injury can easily be eliminated, particularly on the strength of the history.

The frequent occurrence of tuberculous affections of the knee joint, on the one hand, and of injury to the semilunar cartilages, on the other, and the extremely rare occurrence of the pseudotumors described above, make it almost impossible to lay down definite differential diagnostic rules. Only the following may be said: Should there be a chronic recurring serous-hemorrhagic effusion into the knee joint, accompanied by the described symptoms of a chronic synovial affection, and the characteristic cushionlike swelling together with pseudofluctuation (even subsequent to aspiration), the conditions referred to above should be considered as possibly being present.

As to therapy, only the operative procedure (which is generally the sole means of establishing a definite diagnosis) should be considered. The best method is to flap open the joint by a large medial arthrotomy. If the process is well defined, excision of the affected portion of the synovial membrane, particularly in the region of the upper recess, far into the healthy tissue, will suffice. In the diffuse types of synovitis villosa chronica, total synovialectomy, if necessary adding a lateral incision, should be performed.

Prognosis is favorable. Relapses have, as a matter of fact, been described. A sufficiently radical operation will, however, help to dispose of this possibility. In both our cases, as a prophylactic measure, we gave after-treatment with roentgen rays, and we recommend this method in all similar cases.

SUMMARY

Two cases of pseudotumor formation in the synovial membrane of the knee joint are reported, one a case of synovitis villosa hemorrhagica chronica and the other a benign synovial histiocytoma. The clinical as well as the histopathologic properties of these formations are discussed and their extremely rare occurrence—as supported by the literature—is pointed out.

Differential diagnosis is difficult. Therapy consists solely in operation, though after-treatment with roentgen rays is advised. Prognosis is favorable.

BIBLIOGRAPHY

1. Berger, L.: Am. J. Cancer *33*:501, 1938.
2. Bertelsmann, R.: Zentralbl. f. Chir., 1927, p. 710.
3. Bick, E. M.: J. Bone & Joint Surg. *12*:33, 1930.
4. Broders: Ann. Surg. *70*:574, 1919.
5. Dowd, C.: Ann. Surg. *56*:863, 1912.
6. Eggers, H.: Zentralbl. f. Chir., 1927, p. 1409.
7. Ely, L. W.: Ann. Surg. *68*:426, 1918.
8. Frangenheim, P.: Arch. f. klin. Chir. *157*:738, 1929.
9. Geschickter, C. F., and Lewis, D.: Am. J. Cancer *22*:96, 1934.
10. King, E. S. J.: Brit. J. Surg. *18*:594, 1930-31.
11. King, E. S. J.: J. Path. & Bact. *41*:117, 1935.
12. Kling, D. H., and Sashin, D.: Arch. Surg. *30*:52, 1935.
13. Koch, H.: Zentralbl. f. Chir., 1927, p. 54.
14. Mandl, F.: Zentralbl. f. Chir., 1928, p. 10.
15. Mandl, F.: Arch. f. klin. Chir. *151*:302, 1928.
16. Morton, J. J.: Surg., Gynec. & Obst. *59*:441, 1934.
17. Payr, E.: Arch. f. klin. Chir. *176*:551, 1933.
18. Razemon, P., and Bizard, G.: Rev. de chir. *50*:229, 1931.
19. Schajowicz, F.: Zentralbl. f. Chir. *28*:1649, 1937.
20. Schueller, M.: Berl. klin. Wchnschr., 1900, p. 93.
21. Sonntag, E.: Deutsch. Ztschr. f. Chir. *223*:346, 1930.
22. Strauss, A.: Surg., Gynec. & Obst. *35*:161, 1922.
23. Titus, N. E.: Arch. Phys. Therapy *14*:285, 1933.
24. Tourneux, J. P.: Rev. de chir. *47*:817, 1913.
25. Wegelin, C.: Schweiz. med. Wchnschr. *9*:722, 1938.
26. White, J. R.: Surg., Gynec. & Obst. *38*:489, 1924.

RÉSUMÉ

Deux cas de formation de pseudotumeurs dans la membrane sinoviale de l'articulation du genou sont décrits, un, un cas de sinovite villeuse hémorragique chronique et l'autre un histiocytome sinovial bénin. Les propriétés cliniques et histopathologiques de ces formations sont discutées et leur extrême rarité

vient mise en rélief, comme on démontre de la litérature.

Le diagnostique différentiel est difficile. La thérapie consiste seulement dans l'opération, quoiqu'elle soit conseillée après traitement avec les rayons roentgen. Le prognostique est favorable.

SUMARIO

Se dan a conocer dos casos de formación pseudo-tumoral en la membrana sinovial de la articulación de la rodilla; en uno de ellos se trató de una sinovitis vellosa hemorrágica crónica y en el otro caso de un histiocitoma sinovial benigno. Se discuten los síntomas clínicos así como la histopatología y se señala la rara frecuencia con que se presentan estas formaciones.

Es difícil el diagnóstico diferencial. La terapéutica consiste solamente en la operación aún cuando después se aconseja el tratamiento de rayos roentgen. El pronóstico es favorable.

Выводы

Автор дает описание двух случаев опухоли, возникшей из синовальной оболочки коленного сустава. Автор также приводит случай синовальной ворсичатой хронической геморрагии и доброкачественной синовальной гистиоцитомы. На основании литературных данных автор относит их к редким заболеваниям.

DOMINIQUE-JEAN LARREY

(Continued from page 218)

the author's collection, written to Larrey by Napoleon's brother Joseph from London, dated June 15, 1840. The translation of the letter follows:

London, June 15, 1840

Baron:

I am living in the city, but I am on the point of establishing myself in the country, where I would like to have a doctor live with me who would have enough experience to take charge of my health, which has always been good, but which at our age is beginning to deteriorate, although it has not as yet been greatly affected. I would want him to take charge not only of my health, but of that of the persons who live with me; I would like him to be both doctor and surgeon. I will give him board and lodging. What salary do you think I should pay him? I would like him to be unmarried and not more than 45 years old.

As always, Sir,
Your affectionate
Joseph

Joseph Bonaparte's exactions from his medical adviser pique our interest. He desires a physician who would embody the following: be a specialist in geriatrics; one willing to minister to "group medicine," and be conversant with medicine and surgery alike, etc. From his stipulations about allowing this versatile health adviser board, lodging and a salary to be suggested by Larrey, Joseph also evinces that even royalty was not eager to be too liberal with medical fees. Joseph also stresses that the doctor must not be married and specifies an age limit. It seems there is only one thing that he does not specify, and that is the religion of the doctor. That is much to Joseph's credit; perhaps he may have been influenced in that by the Revolutionary period which France had just gone through and the democratic attitude of the English among whom he had been living in London.

Larrey's admiration for Joseph's brother was unbounded. When Napoleon's ashes were brought to Paris in 1840, Larrey, about 70 years old at that time, walked the entire way to the *Invalides* with his head uncovered and weeping. Napoleon's will is adequate testimony to the esteem in which the "Little Corporal" held Larrey. *"I leave to the surgeon-in-chief Larrey 100,000 francs. He is the most virtuous man I have ever known."* The last sentence was engraved on Larrey's tombstone in Père-Lachaise.

A Hypernephroid Tumor of the Right Kidney, with a Metastatic Lesion in the Right Scapula

CHARLES EDWARD NAGEL, Ph.G., M.D., F.A.C.S., F.I.C.S.
GREAT FALLS, MONTANA

AS ONE becomes more familiar with malignant disease, gained through experience over a period of years, the words of Areatus become more appreciated. Areatus said, "When he can no further aid, the physician alone can still mourn as a man with his incurable patient: this is the physician's lot." Especially during the past several months, his words have been deeply impressed upon me.

My own experience with surgery of the kidney, has been that of a general surgeon, with malignancies of the kidney very limited. One case was in a child nine months old. The specimen weighed 1125 gm. Pathologic histology was that of a sarcoma, mixed type, grade three malignancy. Outcome fatal. In the case under consideration, a white male aged 68 had a condition complicated by aortic regurgitation and auricular fibrillation; he is living and convalescent.

The most recent survey of interscapulothoracic amputations for malignancy of the shoulder girdle has been accomplished by Pack *et al.*[1] with a rather complete historical and factual report of cases by this group. It would lend nothing to this report to review these articles. Strode *et al.*[2] in a recent article have reported two interesting cases, while Milch[3] reported a case in which this amputation was resorted to for a tuberculous shoulder girdle. I find no record of surgery of such magnitude in the archives of the Columbus hospital.

Suffice it to say that the procedure can be very difficult, that it can be quite formidable and that it is quite mutilating. Yet it has its place and it is justifiable in the following conditions: (1) severe and extensive injuries of the shoulder girdle; (2) acute and chronic infections; and (3) malignancies of the shoulder girdle.

As to the etiology of malignancies, I believe the iconoclastic attitude is the best. Admitting that much research work has been done, little if anything has been added to the conception offered by Senn[4]: "Every tumor is the product of tissue proliferation of a congenital or postnatal matrix of embryonic cells, aroused into activity by a general or local physiologic stimulation or by congenital or acquired abnormal conditions in its immediate environment." Cramer[5] has but elaborated upon this older conception. Little would be gained by reviewing countless other theories in a practical paper and by one who lays no claim to specialization.

CASE REPORT

History: D. R. L., aged 68, white, male, married, was admitted to the Columbus Hospital, March 21, 1942.

Chief complaint and present illness: In late 1940 and early 1941, he was treated with

tablets for a prostatic condition and bloody urine. Cystoscopic findings were negative for malignancy of prostate or bladder. At this time also, he was taking treatment for a painful right shoulder, for which he went to a local hot spring, and while there an osteopath manipulated his stiffening shoulder. Early in 1941, he fell and injured the right shoulder and fell again in the autumn of 1941, injuring the same shoulder. He saw another osteopath, who made a diagnosis of dislocation. After trying unsuccessfully to reduce it he referred him to a physician. The shoulder was very painful and fixed. Plates taken at that time showed marked destruction of the glenoid cavity and blade of scapula. During the four months prior to his admission he stated that he lost 43 pounds and that he also noticed a mass in his right flank, which seemed to be growing rapidly. Otherwise he felt fine.

Past illness, operations and injuries: Measles, chickenpox. Denied venereal disease. Appendectomy, 1939. Right inguinal hernia of several years duration.

Family history: Mother alive, 96. Father alive, 94. One brother and one sister alive and well.

Personal history: Nocturia two or three times a night. Bowels costive. Digestion poor, troubled with sour belching. Loss of 43 pounds last four months.

Physical examination: A male, white in the late 60's, who except for a badly deformed and fixed shoulder, appears neither acutely or chronically ill. Upon examination has the following positive findings: Arcus seniles. Upper and lower plates. Thoracic cage normal in contour except for the right shoulder girdle, which is considerably enlarged and fixed; carrying forearm at right angle to arm. Muscle turgor poor throughout body. The tumor is in the region of the deltoid and scapula, very firm and considerably warmer to the touch than the left. Atrophy of muscles of the forearm, probably due to disuse. Heart is moderately enlarged and there is a definite murmur of aortic regurgitation, pulse is definitely of the Corrigan type. Arteries are sclerosed and the pressure in the left arm is 200/64. Abdomen, beginning in the left lower quadrant and moving counterclockwise; the examination is essentially negative until one reaches the upper right quadrant where one feels a definite rounded mass, which does not appear to be fixed to the liver; it falls to the left when the patient rests on his left side. Bimanual, exerting pressure in the renal triangle; one derives the sense of tumor motion; it can be moved back and forth between the palpating hands; it is not tender. In the right lower quadrant is a scar of the previous appendectomy; and in the right inguinal canal there is a definite bulge of an indirect hernia. Lower extremities normal.

Impression: We have here a male who for at least a year has suffered from pain and disuse of the right shoulder; there is also a history of hematuria of unestablished etiology; and there is a history of two injuries, not counting the additional trauma instituted by the osteopaths; and more recently the history of rapid weight loss, with the patient becoming aware of a tumor mass in the right flank. Obviously, since there is no history of jaundice and the liver does not suggest cirrhosis, we are dealing with a tumor, either of retroperitoneal origin or of the kidney. Retroperitoneal tumors are not usually freely movable. The tumor mass is firm, not cystic and therefore cannot be readily considered as a massive hydronephrotic or possibly polycystic kidney. The mass is firm and nodular. It is probably a malignancy of the kidney. The age of the patient tends to rule out the mixed type of malignant kidney, but comes well within the age of the hypernephroid type of tumor. The shoulder may be one of metastatic origin. This supposition is based on the fact that other than a history of hematuria, cause of which was not established, it fits in well with the insidious picture of hypernephroid tumors of the kidney.

Presumptive diagnosis: Malignant tumor of the right kidney; adenocarcinoma; hypernephroma, right shoulder, metastatic from kidney; aortic regurgitation; generalized arteriosclerosis.

Treatment suggested was that of x-ray therapy to tumor mass in shoulder girdle, followed by (1) nephrectomy and (2) removal of the shoulder. The patient was advised of the seriousness of both procedures, but preferred to take the risk. The treatment was, therefore, subsequently carried out.

X-ray therapy was given using 200 KVP 20 MA. 50 TSD. 20 Cm. Aperture, 1.5 mm. copper and 1 mm. aluminum. Fifteen minutes, alternately over the posterior and anterior scapular regions. These were started on March 24 and completed on April 7, 1942, or a total of 13 treatments equivalent to 13 × 258 or 3350 R. During this time the patient was hospitalized and essential studies accomplished.

Clinical laboratory reports: Urinalysis: 3.21.42; sp. gr. 1.011 alkaline; 20 — 25 rbc. 5.15.42; sp. gr. 1013. alkaline; 1+ sugar. Amorphous phosphates and triple phosphate crystals. Interval urine of little consequence.

X-ray studies: The original plate taken in stereo at the Columbus on March 11, 1942. It showed the right shoulder, part of the cervical vertebrae, upper thoracic cage and the humerus, clavicle and scapula. The entire glenoid cavity and contiguous portion of the blade of the scapula destroyed. On March 22, 1942, chest and abdomen: No evidence of metastasis to bones. No mass in abdomen visualized. March 25, 1942, KUB and KUB with dye; very large shadow corresponding to right kidney area visualized. Left kidney also very large and low in position. No dye seen in kidneys at any time, but dye was visualized in bladder at end of one hour. May 14, 1942, chest: No evidence of metastasis in pulmonary fields. May 13, 1942. Scapula with tumor and upper third of humerus, after removal and dissection of area. Plate shows upper third of humerus, some fragmented bone in region of the upper border of the scapula and only about one third of the scapula blade composed of the axillary border, vertebral border and the inferior angle. The clavicle is not visualized since in the removal of the shoulder, the outer two-thirds had been removed to facilitate the exposure of the brachial plexus and the subclavian vein and artery.

Electrocardiogram: March 29, 1942, rhythm irregular, auricular fibrillation; April 14, 1942, inverted "T" in the second, third and fourth leads.

Preoperative care and treatment consisted of every reasonable effort to build up the patient, by diet fortified with vitamins, rest, cardiac support and transfusions of both whole blood and plasma.

Table I

Hematology:	3.24.42;	3,87m.	Hgb.	10.4gm.	C. I.	.85	10,900wbc.	85% P.	14 L.	OE.	OB.
	4. 7.42;	4,09m.		11.5		.89	4,600	83	16		1
	5.13.42;	3,36m.		10.0		.94	8,750	67	28	3	1
	5.30.42;										

Coagulation time: 4½ min. Blood Typing: International "B," Moss 111.

Blood Chemistries:

	B U N.	N P N.	Creat.	Fibrin	Albumin	Globulin	Total Prot.	Ratio A/G
NORMAL	10–15	25–35	1–2		4.5–5.5	1.5–3	6–8	1.5/2.5:1
3.24.42:	21.2	40.5	1.8					
4. 8.42:	30.4	44.7	2.01	0.807	3.349	5.093	9.249	1.5/1.7/1:3:1
5.11.42:	17.7	34.6	1.13	0.86	4.88	4.99	10.73	(1.7:1) (3.1) (1:1.02)

Biopsy on March 23, under local anesthesia, consisted of both excision of tissue from the posterior aspect of the tumor mass and aspiration. Too much bleeding resulted and the procedure was stopped.

Nephrectomy was done on April 15, employing cyclopropane, helium and ether. Operative time, 1 hr. 15 min. Lumbar incision was employed.

Gross pathology: The kidney was of unusual size, with the upper pole appearing normal and from above down, the kidney enlarged until a very large bulbous nodular pole had developed. The capsule was very adherent and considerable bleeding was quite bothersome throughout the entire extirpation. The hilum and the ureter were practically obliterated by the encroaching tumor growth.

Pulse rate, preoperatively 60, respirations, 20, blood pressure, 110/80. Pulse rate at con-

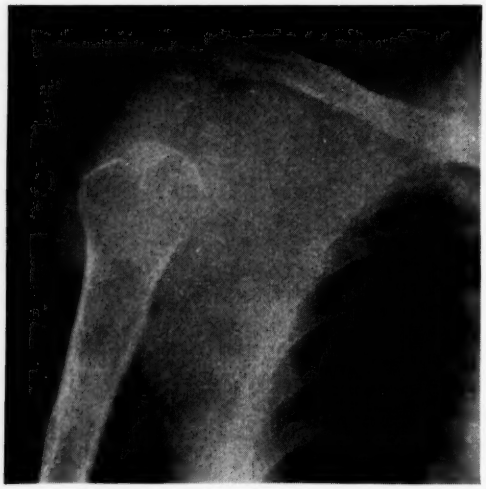

Fig. 1. X-ray picture of right scapula of patient prior to surgical intervention

Fig. 2. Specimen removed at operation

clusion 84, respiration, 20, blood pressure, 100/78.

Interscapulothoracic amputation on May 13, 1942, under cyclopropane, helium and ether with operative time 1 hr. and 10 min. Technic of Berger-Faraboeuf. Except for a moderately severe amount of bleeding, it was relatively simple. Pulse at beginning of operation 72, respirations 18; at conclusion pulse 112 and respirations 28.

This procedure was apparently somewhat more shocking than had been the nephrectomy. However, he responded favorably to immediate shock treatment as the postoperative survey indicates; and which along with the one for the nephrectomy is reviewed.

Postoperative nephrectomy: April 14, 1942: 500 cc. citrated blood and 500 cc. normal saline. April 15, 1942: 500 cc. blood plasma and 1000 cc. 5 per cent glucose in normal saline and 1000 cc. 10 per cent glucose in normal saline. April 16, 1942: 10 per cent glucose in normal saline. April 17, 1942: Blood plasma 500 cc. and 500 cc. normal saline: 1000 cc. 5 per cent glucose in normal saline. April 18, 1942: 1000 normal saline with 5 per cent glucose. Wangensteen suction was employed to avoid distention. Fluids by mouth were increased as tolerated and diet increased as indicated. In addition, coramine, ampules 1, was given for six doses postoperatively along with digalen, ampules 1, intramuscularly, until digitora could be tolerated by mouth. Sulfathiazole, a total of 8 gm., was given, due to a slight purulent discharge from nephrectomy wound. Only twice during the period did the temperature reach 101.6° by rectum. The urine was free of RBC since surgery.

Postoperative amputation: Prior to surgery, the patient received 500 cc. of citrated blood, on the morning of May 14, 1942. Due to the blood fluid loss, moderate shock had to be combated and for this purpose, coramine, ampules 1, was given immediately on the table and a second was given with 500 cc. blood plasma and 500 cc. 5 per cent glucose in normal saline. That afternoon another 1000 cc. 10 per cent glucose in normal saline was given. A total of 5 cc. of coramine postoperatively were given. Until the patient could tolerate digitora by mouth, digalen, ampules 1, a total of 15 were given intramuscularly. May 15, 1942: blood plasma 500 cc. were given. Fluids and diet increased as tolerated. The temperature never rose above 100.8.

Pathologic histology reports: Biopsy, March 23, 1942: Aspirated material, blood clot, no abnormal cells found. Small fragment of muscle tissue, no malignant tissue noted. April 14, 1942: kidney greatly enlarged, weighing 907.18 gm. Kidney tissue is replaced by nodular, yellowish white tumor

mass, extending down into the pelvis of the kidney.

Microscopic findings: Growth is made up of nests of large cells with clear cytoplasm, and relatively small nuclei. Occasional areas where cells attempt to arrange themselves in the form of tubules are found.

Diagnosis: Clear cell adenocarcinoma of the kidney. May 12, 1942. Upper arm tissue, *gross description:* Tumor growth involving most of the scapula with destruction of bony tissue. *Microscopic findings:* Tumor is composed of nests and of strands of atypical epithelial cells, resembling those found in the kidney tumor of the same patient.

Diagnosis: Metastatic clear cell adenocarcinoma of scapula, metastasized from kidney.

The controversial matter as to whether these tumors are hypernephroma or carcinoma will not be considered here. Stout,[6] in my opinion, has very carefully reviewed this subject and has placed this type of tumor under the generic heading of hypernephroid tumors. As pointed out by him, the bone metastases of the tumor, are of the osteoclastic type, usually highly vascular and in some instances, may be of the pulsating type. In this case to date, no other metastatic focus has been demonstrated; but that is not to be accepted as a criterion of cure. Malignancies are known to be spread: (1) by the blood vascular system; (2) by the lymphatics; (3) by contiguity and probably by all three simultaneously. Therefore metastatic foci may be looked for, and if data on the metastatic lesions are accurate, they can be found in any structure or organ of the body. Prognosis must be guarded. No promise of cure was offered and none expected. It is believed, though, that the patient has been made more comfortable and he will be watched with extreme interest.

General résumé: Considering the age of the patient, the extensiveness of the pathologic lesions and the cardiac complication, the risk was of the gravest sort. All this was explained not only to him, but to the family. He however felt, as did his family, that there was something to gain and little to lose. Personally, I feel that with judicious and careful preparation, one can obtain good temporary results even in the face of a grave risk. My colleagues concurred in this opinion and at least for the time being, results seem to support our contention.

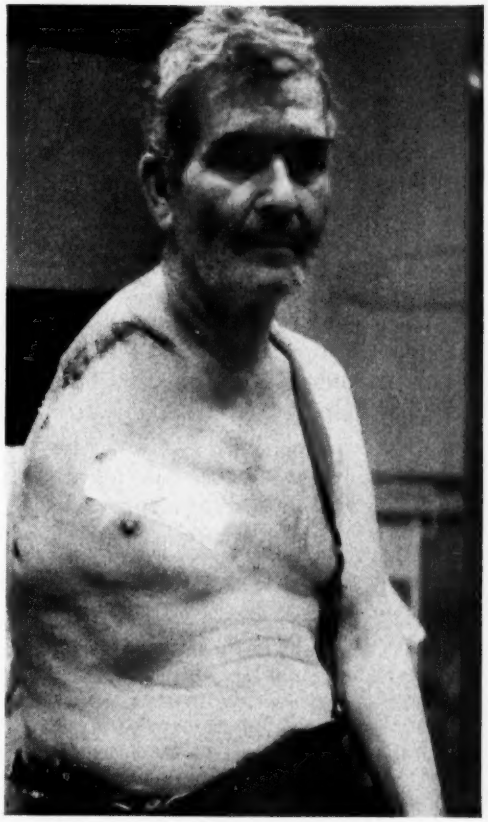

Fig. 3. Appearance of the field of operation following surgery

Cystoscopy: Although no evidence of malignancy of the bladder or the prostate was found on a previous examination, it was deemed wise to recheck. On June 10, the patient was again cysto-

scoped. A No. 24 sound was passed without difficulty. Catheterization was negative for residual urine. The bladder was normal, except for trabeculations at the base. Ureteral openings appeared normal. Rectally the lateral lobes enlarged two plus, smooth and hard, somewhat nodular. No further intervention appears to be indicated at this time.

SUMMARY

A preliminary report is here offered of a male in the late 60's who had a hypernephroid tumor of the right kidney with a metastatic focus in the right scapula. Complicating the case was an aortic regurgitation and an auricular fibrillation. He survived two major procedures, that of nephrectomy and within a month's time that of interscapulothoracic amputation of the right shoulder girdle.

I wish to thank Doctors T. Walker, C. Little and the Staff on the West Wing of the Columbus Hospital, for their intrest and help in this case.

BIBLIOGRAPHY

1. Pack, G. T., McNeer, G., and Coley, B. L.: Surg., Gynec. & Obst. 74:161-175, 1942.
2. Strode, J. E., and Fennel, E. A.: Surgery 9:394-402, 1941.
3. Milch, H.: Ann. Surg. 97:381-386, 1933.

RÉSUMÉ

L'auteur nous rapporte un cas d'hypernéphrome du rein droit avec lésion métastatique dans l'omoplate droite, chez un homme âgé de soixante ans. En outre le malade souffrait de régurgitation aortique et de fibrillation auriculaire. Le malade a survécu deux opérations majeures dans l'espace d'un mois: une néphrectomie et une amputation interscapulo-thoracique de l'épaule droite.

SUMARIO

El autor presenta un caso de tumor hipernefroid del riñon derecho con lesión metastática en la escápula derecha en un hombre de 60 años de edad.

El caso estaba complicado con regurgitación aórtica y fibrillación auricular.

El paciente sobrevivio dos operaciones mayores durante un mes: una nefrectomía y una entra-escápulo-torácica amputación circular del hombro derecho.

Выводы

Автор сообщает об опухоли правой почки с метастазом в правой лопатке у мужчины 60 лет. Случай был осложнен фибрилярным сокращением предсердия. Больной перенес две тяжелые операции в течении одного месяца — нефректомию и интерскапулоторакальную ампутацию.

NEWS ITEMS

Dr. A. A. Berg, president-elect of the International College of Surgeons and consulting surgeon at Mt. Sinai Hospital, New York, has recently made a gift for postwar construction of a research laboratory at Mt. Sinai Hospital as a memorial to his brother, Dr. Henry W. Berg. Dr. Henry Berg, a member of the attending staff of the hospital for 40 years, died in 1938, aged 79. Located among Mt. Sinai's 18 buildings, the Henry W. Berg Research Laboratory Building, as it is to be known, will be constructed as soon after the war as materials and labor become available. With the addition of the new building, Mt. Sinai Hospital will be enabled to make its contribution to American leadership in world medicine until European hospitals and scientific centers are rebuilt. Housed in the new building will be departments of bacteriology, pathology, physiology, chemistry, gastro-enterology, cardiology, hematology, endocrinology, metabolism and biophysics. Dr. Berg's gift was hailed by the trustees "as a fitting climax to his half century of medical and humanitarian service to Mt. Sinai." Dr. Berg has been associated with the hospital since his internship there in 1894.

Major Charles Arnold, F.I.C.S., is now stationed in England in charge of the surgical service of a hospital. He was recently the guest of Mr. and Mrs. Hamilton Bailey, F.R.C.S., F.I.C.S.

(Continued on page XI)

Acute Cholecystitis

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A STUDY of the literature in acute cholecystitis discloses that surgeons are still divided as to whether it is best to operate on these cases immediately or after the acute attack subsides. Some have recourse to cholecystectomy, others to cholecystotomy; a number still advise medical measures as the sole treatment.

Among those authorities who advocate immediate or early surgery are Walton, Stone, Heyd, Miller and Judd. The main argument advanced by its opponents is that operation during the early stage entails unwarranted risk and that cholecystectomy is definitely more difficult and more hazardous while the acute inflammation is present.

Results in forty-nine cases of acute cholecystitis are presented in this paper. Three tables are furnished, one showing the time of operation, another the age at operation and the third an analysis of the deaths. Obviously, the clinical judgment of the surgeon is the most important factor in handling this type of case, but clinical judgment can be improved by reports of others, as well as personal experiences.

I am inclined to agree with those who say "once gall-bladder disease, always gall-bladder disease." For this reason, I advise immediate and early surgery in every case of acute cholecystitis. The diagnosis must, however, be based upon a meticulous history, careful physical examination and the usual laboratory studies. Any decision to operate should, of course, be tempered by present conditions, need for supportive therapy and age. Table II shows the truth of the dictum "the older the patient the greater the risk."

Table I

Operation	Time of Operation	No. Cases	Sex		Deaths	Mortality Per Cent
			Male	Female		
Immediate	12-24 hours	6	4	2	0	0
Early	24-72 hours	28	13	16	2	7
Late	After 3 days	15	7	8	6	40

*Presented at the Fourth International Assembly of the International College of Surgeons, New York, June, 1943.

HISTORY

The patient usually gives a history of selective dyspepsia over a period of years, is past middle age and over weight. Ninety to 94 per cent of them will complain of previous attacks of pain in the upper right quadrant.

The differential diagnosis includes the following: (a) Acute pancreatitis in which the patient is more seriously ill,

respirations are labored and cyanosis may exist. Rigidity is less marked and the patient as a rule is in a state of collapse. No mass can be palpated. (b) is the principal symptom. If the obstruction is not relieved, as happens in most cases, symptoms of infection make their appearance, in the form of temperature

Table II

Age Incidence	No. Cases	Sex		Deaths	Mortality Per Cent
		Male	Female.		
30-40	18	10	8	1	5½
41-50	22	10	12	4	18
51-60	7	2	5	2	28
61-70	2	1	1	1	50

Perforated duodenal ulcer, where the clinical history usually presents periodic hyperacid *syndrome* and the picture of sudden acute localized pain-subnormal or slightly elevated temperature, with the desire to lie quietly rather than make the slightest motion. (c) In acute appendicitis the onset of pain is usually localized around the umbilicus, later in the right lower quandrant. The temperature is only slightly elevated as a rule. (d) Acute intestinal obstruction presents a somewhat different clinical picture. The pyrexia in acute cholecystitis is more marked. (e) Right renal colic at times simulates biliary colic, whereas the symptoms here are referable to the urinary tract. (f) An early right-sided lobar pneumonia may present more difficulty, though the respiratory rate will be significant.

SYMPTOMS

In acute cholecystitis the onset is characterized by a pain, usually sharp and lancinating in character. This pain may be referred to the back, epigastric region, under the right scapula or to the cardiac area. This sharp pain usually indicates cystic duct, or common duct obstruction and for a period varying from twelve to twenty-four hours, this

varying from 97°-104° F. The pulse rate varies according to the degree of inflammation and toxemia. Nausea or vomiting as a rule are present. The leukocyte count varies from 6000 to 18,000 with a corresponding rise in the differential count. Gage states: "the neutrophile percentage is more indicative of the severity of the inflammatory process within the gall bladder than is the total leukocyte count. Tenderness and rigidity in the right upper quadrant are important clinical findings. A mass may or may not be palpable. Clay-colored stools are seldom present. The clinical indications of perforation or gangrene are a high temperature, increased pulse rate, rising blood count and progressive toxicity of the patient. As the acute condition subsides the temperature drops." Occasionally this occurs and yet the patient may have a gangrenous gall bladder as happened in one of my cases.

ROENTGENOLOGIC ASPECTS OF ACUTE CHOLECYSTITIS

Roentgen-ray examination of the gall bladder aids the clinician by two diagnostic procedures. The first of these is the routine flat-film of the abdomen, whereby the gall-bladder area is studied for the presence or absence of radi-

opaque shadows. Occasionally empyema of the gall bladder will produce an increased density of sufficient degree to be diagnostic on the plane abdominal roentgenogram. The second procedure, namely, cholecystography, is furnished by supplementing this ordinary roentgenographic study with a contrast media which is selectively eliminated by the liver and concentrated and stored in the gall bladder—the Graham-Cole test. This latter examination is a functional test in that the positive information it reveals is simply whether or not the gall-bladder functions, *i.e.*, concentrates and stores bile and contrast media. So-called "negative stone shadows" or biliary calculi with insufficient calcium content to be revealed on the ordinary flat abdominal film, if present in sufficient amounts, will be indirectly seen by failure of the contrast media to completely and uniformly fill the gall bladder and by virtue of the dye outlining the non-calcified material. Thus, the Graham-Cole test in certain instances demonstrates indirectly the presence or absence of stones as well as the functional state of the gall bladder.

The problem of acute cholecystitis is one in which the roentgenologic examination can be of only limited help. This is clear if one considers the pathologic physiology involved in relation to the roentgen methods just enumerated. In acute cholecystitis water and transudate pass from the wall into the lumen of the gall bladder. This eliminates cholecystography as a useful procedure due to the inability to obtain concentrated contrast media within the gall bladder because of dilution. Experience has shown that the Graham-Cole test or cholecystography is of no value before three weeks following an acute cholecystitis. X-ray examination is limited, therefore, in this condition to the flat-film technic for demonstration of gall stones. The acute swelling of the gall bladder makes even this more difficult for demonstrating very small or less dense stones, for a distended gall bladder tends to obscure such stone shadows by lessening the density differential between the stone and surrounding gall-bladder area.

Yet roentgen examination of the right upper quadrant (flat abdominal film) in the presence of an acute cholecystitis may show star-shaped fissures in calculi which place these calculi directly in the gall bladder and not in the kidney. While it is true that these fissures are of interest chiefly to the roentgenologist, they do localize these calculi as being present only in the gall bladder—valuable information to be obtained from a single flat abdominal film.[1]

However, a precaution which must be kept in mind in roentgenologic interpretation of a film in the presence of acute cholecystitis with cholelithiasis, is the possibility of decalcification of the calculi under these pathologic conditions. Frequently one sees decalcification of the parts of the skeletal system in the presence of an acute inflammatory process and occasionally the inflammatory process of an acute gall bladder will produce a similar type of decalcification of the calculi, to the point where even though these calculi are present they will not be demonstrated roentgenologically.[2]

For the reasons listed above roentgenologic aid in diagnosis of acute cholecystitis either with or without calculi is fairly limited. Factors favoring a roentgen diagnosis are: (1) the possible presence of semi-opaque or opaque stones; (2) the possible presence of star-shaped fissures in these calculi which directly places them in the gall bladder, (3) the density of an empyema of the gall bladder, which will be fairly well outlined on a film of the right upper quadrant. However, factors may be present which cannot be visualized: (1) nonopaque calculi, which comprise the

greater percentage of biliary calculi; and (2) possible decalcification of calculi in the presence of an acute inflammatory process.

PREOPERATIVE TREATMENT

The patient should be brought to the operating room only after having received adequate preoperative treatment. These patients are often dehydrated and have an increased need for sugar. Therefore, it is of vital importance that the fluid balance be restored. This is accomplished by giving intravenously 1000-2000 cc. 10 per cent dextrose alternately with normal saline solution, which will also replenish the chloride loss. A Levine tube with Wangensteen suction apparatus should be introduced to combat vomiting and distention. This may be left *in situ* for the postoperative treatment.

Morphine sulphate with atropine sulphate should be given, in dosage required, according to age, for relief of pain. Hot stupes are of some value in the relief of pain. Vitamin K will help to decrease the clotting time, if the patient is jaundiced, bile salts aid absorption of fat soluble vitamins if they can be given by mouth. Blood transfusions are of great benefit when the patient has toxic hepato-cellular disease and in these cases should be resorted to early.

TYPE OF OPERATION

Experience has shown that cholecystectomy is far superior to cholecystotomy in the acute cases, although it is generally agreed among surgeons that cholecystotomy is the choice in "bad risk" cases. I have performed cholecystectomy in my series, except in three cases, two of these had empyema, the third was a "bad risk" case with perforation at the fundus of the gall bladder and the stones were free in the abdominal cavity. In these three cholecystotomy was done. The common duct should always be explored in cases of acute cholecystitis. When a stone is impacted in the common duct, it must be removed and the duct drained with a proper size T-tube. It is now generally agreed that the advent of Vitamin K and bile salts made cholecystectomy in jaundiced cases a much less dangerous procedure.

I still advocate drainage of the gall bladder fossa following cholecystectomy as the field of operation is seldom free of blood or bile. It may save the necessity of reopening the abdomen and inserting a drain. The convalescent period in the cases drained at time of operation is not changed and the drain may be removed on the fifth or sixth day.

POSTOPERATIVE PERIOD

The majority of cases have a rather stormy postoperative course. Dextrose 10 per cent, 2000 cc. should be given intravenously every twenty-four hours. Morphine sulphate with atropine sulphate, will alleviate the pain and relax the pyloric sphincter. These drugs should be repeated every four hours. Wangensteen suction should be continued as part of the postoperative care. Carbon dioxide-oxygen inhalations during the first twelve hours and the use of the oxygen tent when the respiratory rate rises above 30-34 per minute are of great value in preventing pulmonary complications. After forty-eight hours, lukewarm water may be given, the Levine tube clamped and if no untoward symptoms, such as distention, occur, more fluids can be given by mouth. Should distention occur, removal of clamp will again eliminate these symptoms. On the fourth day, unsweetened tea-gingerale or fat-

free broths are tried, followed by removal of a suction tube and a soft diet on the sixth or seventh day.

SUMMARY

1. The mortality rate in acute cholecystitis is lowered by immediate or early operation. The mortality rate increases as age progresses.

2. Cholecystectomy is the choice operation unless the case is a "bad risk." Cholecystotomy is indicated when the patient is aged or when empyema is present.

3. Drainage of gall-bladder fossa following cholecystectomy is of value, as the abdomen may have to be reopened unless it is done.

4. Dextrose solution intravenously pre- and postoperatively are of great value, with blood transfusion if the case warrants. Wangensteen suction relieves distention. Carbon dioxide-oxygen inhalations and the oxygen tent are valuable if signs of pulmonary complications arise.

5. The clinical and laboratory findings are not always indicative of the severity of the pathology present in the gall bladder.

6. Early operation will practically eliminate the hazard of gangrene with perforation.

BIBLIOGRAPHY

1. Akerlund, Ake: *Uber Transparente Gashaltige Spaltbildungen in Gallensteinen und Ihre Röntgendiagnostische Bedeutung.* Acta Radiologica *19*:215-229, 1938.
2. Hansson, Nils: *Decalcification of Gallstones.* Acta Radiologica *17*:548-550, 1936.
3. Best, R. Russell: *The Acute Gall Bladder.* Surg., Gynec. & Obst. *73*:312-319, Sept., 1941.
4. Bettman, Ralph Boerne: *Technic of Cholecystectomy.* S. Clin. North America *22*:63-72, February, 1942.
5. Clute, Howard M., and Lembright, J. Fred: *Immediate Surgery in Acute Cholecystitus.* New Eng. J. Med. *218*:72-75, Jan. 13, 1938.
6. Cole, Warren H.: *Factors in the Prognosis and Mortality of Gall Bladder Disease; Collective Review.* Internat. Abstr. Surg. *69*:40-46, July, 1939.

Table III

Cause of Death	Age	Early Operation	Late Operation	Pathology
Postoperative Shock	37	yes	no	Acute Cholecystitis with Stone in Common Duct.
Postoperative Pulmonary Embolism	43	no	yes	Acute Cholecystitis with Stone in Cystic Duct.
Postoperative Pulmonary Embolism	68	no	yes	Gangrenous Gall Bladder with Stone in Cystic Duct.
Peritonitis	55	no	yes	Perforated Gall Bladder with Multiple Stones in Cystic Duct and Free Stones in Peritoneal Cavity.
Lobar Pneumonia	48	yes	no	Acute Cholecystitis with Stone in Common Duct.
Lobar Pneumonia	47	no	yes	Empyema of Gall Bladder with Obstruction of Common Duct.
Coronary Thrombosis	59	no	yes	Empyema of Gall Bladder with Cystic Duct Obstruction.
Atelectasis	45	no	yes	Gangrenous Gall Bladder with Cystic Duct Obstruction.

7. Edwards, Charles R.: *Acute Cholecystitis with Perforation.* Surg., Gynec. & Obst. *74*:127-128, Jan., 1942.
8. Eiss, Stanley: *Safety Factors in Surgery of the Biliary Tract.* Internat. Abstr. Surg. *72*:521-540, June, 1941.
9. Elkin, D. C.: *Cholecystitis; Indications for Operation.* J.M.A. Georgia *28*:275-278, July, 1939.
10. Fallis, Lawrence S., and McClure, Roy D.: *Acute Cholecystitis; a Review of 320 cases.* Surg., Gynec. & Obst. *70*:1022-1028, June, 1940.
11. Frank, L. Wallace: *A study of 350 Consecutive Cases of Cholecystitis, with and without Stones; with Special Reference to Choledochotomy.* Tr. Southern S. A., *53*:255-262, 1941.
12. Gage, Mims: *The Surgery of Acute Cholecystitis.* New Orleans Med. & Surg. J. *91*:607-620, May, 1939.
13. Gariepy, L. J., and Dempster, J. H.: *Gall-bladder Disease.* J. Michigan M. Soc. *40*:705-707, Sept., 1941.
14. Glenn, F.: *Acute Cholecystitis.* Surg., Gynec. & Obst. *69*:431-435, 1939.
15. Glenn, Frank: *The Surgical Treatment of Acute Cholecystitis in Patients Fifty Years of Age and Over.* Surg., Gynec. & Obst. *73*:649-653, Nov., 1941.
16. Graham, H. F.: *When to Operate in Gall-bladder Disease.* Surgery *6*:947-948, Dec., 1938.
17. Gray, H. K.: *Surgical Treatment of Diseases of the Gall Gladder.* S. Clin. N. Am. *19*:881-889, Aug., 1939.
18. Howard, M. A., and Guiss, J. M.: *Surgical Management of Gall Bladder Disease; Diagnosis and Treatment.* Northwest Med. *40*:50-53, Feb., 1941.
19. Hunt, C. J.: *Diagnosis and Management of Gall Bladder Disease.* J. Miss uri M. A. *38*:46-50. Feb., 1941.
20. Joekes, T.: *The Gall Bladder As a Site of Focal Sepsis.* Post-Grad. M. J. *16*:42-50, Feb., 1940.
21. Lyon, B. B. Vincent: *The Preoperative and Postoperative Management of the Surgical Gall Bladder Patient. A Further Effort to Reduce Operative Mortality and Postoperative Morbidity.* Pennsylvania M. J. *42*:142-146, Nov., 1938.
22. MacDonald, Dean: *The Gall Bladder Problem in General Practice.* Canad. M. A. J. *45*:29-36, 1941.
23. McClure, R. D.: *The Diagnosis and Treatment of Cholecystitis.* J. Michigan M. Soc. *38*:1035-1044, Dec., 1939.
24. McNamara, F. P.: *Cholecystitis and Some of Its Complications.* J. Iowa State M. Soc. *30*:25-26, Jan., 1940.
25. Mock, Harry E.: *The Management of Gall Bladder Disease.* Wisconsin M. J. *38*:961-967, Nov., 1939.
26. Mock, Harry E.; Brown, Clarence F. G., and Dolkart, Ralph E.: Surg., Gynec. & Obst. *66*:79-87, Jan., 1938.
27. Stobie, G. H.: *The Acute Gall Bladder; Early Versus Late Operation.* Canad. M. A. J. *42*:158-162, Feb., 1940.
28. Comment: *The Use of Sulphonamides in Cholecystitis and Cholangitis.* M. J. Australia p. 394, Oct. 4, 1941.
29. Thompson, F. N., and Courtney, C. B.: *The Surgical Management of Cholecystitis and Cholelithiasis.* Virginia M. Monthly *66*:390-395, July, 1939.
30. Wallace, Richard H., and Allen, Arthur W.: *Acute Cholecystitis.* Arch. Surg. *43*:762-772, Nov., 1941.
31. Zollinger, Robert: *Acute Cholecystitis.* New Eng. J. Med. *224*:533-537, 1941.

RÉSUMÉ

1. L'opération précoce pour la cholécystite aigüe diminue le taux de mortalité. Avec l'âge, cette mortalité augmente.

2. La cholécystectomie est l'opération de choix. Chez les vieillards et en cas d'empyème de la vésicule biliaire, on pratiquera la cholécystostomie.

3. Le drainage de la fosse de la vésicule biliaire est de rigueur. Si ce drainage n'est pas pratiqué on peut être obligé de rouvrir la plaie abdominale.

4. L'injection intravéneuse de solution de dextrose avant et après l'acte opératoire est de valeur. Dans certains cas, on pratiquera la transfusion sanguine. Le suction Wangensteen soulage la distension. Les inhalations du carbone-dioxide-oxygène son utiles en présence de complications pulmonaires.

5. Les symptômes cliniques et les trouvailles du laboratoire ne nous indiquent pas toujours la sévérité des lésions pathologiques des voies biliaires.

6. L'opération précoce élimine presque surement le danger gangrène et de perforation.

SUMARIO

1. La mortalidad en la colecistitis aguda, baja en relación directa a la inmediata o temprana intervención quirúrgica, mientras que la mortalidad aumenta en la vejez.

2. La colecistectomía es la operación de selección, a menos que el caso sea un "mal riesgo"; y la colecistostomía está indicada en los casos de más edad y cuando existe supuración en la vesícula biliar.

3. Drenaje de la fosa de la vesícula biliar en combinación con la colecistectomía tiene mérito para evitar la necesidad de abrir el abdomen nuevamente.

4. El uso de la solución de glucosa por vía entravenosa antes y después de la operación, combinando la transfusión de sangre cuando se júzgue necesario.

La succión de Wangensteen reduce la distención. La tienda de oxigeno son de auxilio cuando síntomas de complicación pulmonar aparecen.

5. Los datos clínicos y los ensayos o pruebas de laboratorios no son siempre indicativos de la severidad de los cambios patológicos en la vesícula biliar.

6. Temprana operación elimina los accidentes y pelígros de gangrena y perforación.

Выводы

1. Смертность при остром холецистите снижается при немедленной или ранней

операции. Смертность повышается с увеличением возраста больных.

2. Холецистэктомия является операцией "выбора", и она не представляет "большого риска." Холецистэктомия показана у больных престарелого возраста или при эмпиеме желчного пузыря.

3. Дренаж ложа желчного пузыря при холецистэктомии имеет важное значение.

4. Большое значение придается введению глюкозы в до или послеоперационном периоде, а также переливаниш крови.

При легочных осложнениях большое значение имеет ингаляция кислорода и углекислоты.

5. Клинические и лабораторные данные не всегда правильно характеризуют патологическую картину ложа пузыря.

6. Ранняя операция предупреждает возможность перфорации пузыря.

ACKNOWLEDGMENTS

(Continued from page 247)

Revista de la Cruz Roja Colombiana (Bogotá) Vol. XVI, No. 183, Dec., 1943.

Costa Rica

Revista Medica de Costa Rica (San Jose) Año X, No. 113, 1943; Año XI, No. 117, 1944.

Cuba

Revista Médica Cubana (Havana) Tomo LIV, No. 12, Dec., 1943; Tomo LV, No. 1, Jan., 1944.

Villaclara Médica (Santa Clara) Vol. XII, No. 1, Jan. and Feb., 1944.

Ecuador

Revista de la Asociación Médica de Cuenca (Cuenca) Año IV, Nos. 12-13, Oct., 1942-Mar., 1943.

El Salvador

Archivos del Hospital Rosales (San Salvador) Año XXXV, Apr.-May-June, 1943.

England

Proceedings of the Royal Society of Medicine (London) Vol. XXXVII, No. 3, Jan., 1944.

Guatemala

La Juventud Médica (Guatemala City) Año I, No. 2, Feb., 1944.

Mexico

Boletín del Sanatorio "Dr. Nicandro L. Melo" (Veracruz) Año IV, Nos. 9 and 10, Mar., 1944.

Cirugía y Cirujanos (Mexico, D. F.) Tomo XI, Oct. and Nov., 1943.

Cuadernos de Mineralogía y Geología (Universidad Nacional de Tucuman) Tomo III, No. 9, Nov., 1943.

Excerta Medica de la S. C. O. P. (Mexico, D. F.) Tomo II, No. 3, June, 1943.

Gaceta Médica (Villahermosa) Año V, Nos. 60 and 62; Año VI, No. 63, 1944.

Revista Médica (Puebla) Tomo XVII, Nos. 163, 164 and 165, Jan., Feb. and Mar., 1944.

Revista Médica del Hospital General (Mexico, D. F.) Año VI, Nos. 5-6, Dec., 1943, and Jan., 1944.

Revista Médica Veracruzana (Veracruz) Tomo XXIV, Nos. 2 and 3, Feb. and Mar., 1944.

Revista de Medicina y Ciencias Afines (Mexico, D. F.) Año II, Tomo II, No. 19, Feb., 1944.

Revista Mexicana de Tuberculosis (Mexico, D. F.) Tomo 5, No. 27, Nov.-Dec., 1943.

Revista de Urología (Mexico, D. F.) Vol. I, No. 4, July-Dec., 1943.

Sugestiones (Mexico, D. F.) Año IX, Nos. 102 and 103, Feb. and Mar., 1944.

U. M. L. (Leon, Gto.) Año II, No. 7, Dec., 1943.

Palestine

Palestine and Near East Medical Journal (Jerusalem) Vol. II, No. 6, Dec., 1943; Vol. III, No. 1, Jan.-Feb., 1944.

Peru

Gaceta Peruana de Cirugía y Medicina (Lima) Año 5, Nos. 65-66, Sept. and Oct., 1943.

La Reforma Médica (Lima) Año XXIX, Nos. 416 and 417, Dec., 1943; Año XXX, Nos. 418 and 419, Jan., 1944.

Portugal

Boletim do Instituto Portugues de Oncología (Lisbon) Vol. X, Nos. 5 and 6, May and June, 1943.

Puerto Rico

Boletin de la Asociación Médica de Puerto Rico (Santurce) Año XXXVI, No. 3, Mar., 1944.

Union of South Africa

Clinical Proceedings (Capetown) Vol. 2, No. 10, Oct., 1943; Vol. 3, No. 1, Jan., 1944.

Union of Soviet Socialist Republics

Chirurgia (Moscow) No. 7, 1943.

United States

Chinese Medical Journal (Washington, D. C.) Vol. 61, No. 3, July-Sept., 1943.

Uruguay

Anales de la Facultad de Medicina (Montevideo) Tomo XXVIII, Nos. 5, 6, 7 and 8, 1943.

Archivos Uruguayos de Medicina, Cirugía y Especialidades (Montevideo) Tomo XXIII, Nos. 4, 5 and 6, Oct., Nov. and Dec., 1943; Tomo XXIV, No. 1, Jan., 1944.

Boletín de la Sociedad de Cirugía del Uruguay (Montevideo) Tomo XIV, Nos. 9-10, 11-12, 1943.

Venezuela

Revista de la Sociedad Médico-Quirúrgica del Zulia (Maracaibo) Año XVII, Nos. 10 and 11, Oct. and Nov., 1943.

Editorials

The Making of a Surgeon

THE precepts so often reiterated to the young man about to embark on a surgical career or the aspirant seeking the "open sesame" to the surgeon's world are universal in their application.

Dr. Alberto Gutierrez in *De la Formación del Cirujano** (*On the Making of a Surgeon*) has given to the medical student an epitome of the sage advice handed down by teachers of surgery in many medical institutions of many lands. The volume contains no new counsel, but its soundness makes worth while its being brought to the attention not only of the novice, but of the seasoned and experienced surgeon, who occasionally forgets or disregards these dimly heard echoes of his student days.

Dr. Gutierrez begins by stressing some of the *should nots.* The aspirant to a surgical career should not be motivated by the fact that monetary gains are greater in surgery, but by natural aptitude for this branch of medicine. He must not be a poor diagnostician, inept in technic, ignorant of anatomy, careless and not sure of himself. Nor should he begin to operate before he has mastered the fundamentals.

On the other hand, the novice should attach himself to an upright and honest surgeon, first observing, then aiding him and finally operating under his guidance. He should watch other surgeons operate and exchange ideas with those more experienced than he.

The successful surgeon must have as qualifications not only good technic but adequate knowledge of embryology, anatomy, physiology and pathology. Essential in abdominal surgery is a knowledge of peritoneo-intestinal morphogenesis. To learn anatomy thoroughly, he must go to the dissecting room. To master surgical technic, the student must haunt the amphitheater and practice on animals. His technic must be adaptable to various emergencies which may arise.

Calmness, self-control and mastery of self are basic requirements. The good surgeon commands daring linked with prudence. His respect for the patient's life must be paramount—he must not operate unless circumstances so dictate. One-stage procedure, showy operations should be discarded for one of two or even three stages if there is any danger of jeopardizing the patient's life.

Last, but by no means least on this tabulation of *musts,* is surgical conscience. Lord Moynihan's dictum: "For me the operating table is an altar where I celebrate mass," might well be the motto over every operating room. The surgeon's sense of responsibility must be acute. Operations should not be performed before essential laboratory tests are taken, and the surgeon should carefully check results.

Gutierrez cautions the novice in re-

*Ed. 2. Editorial Nocito & Rano, Buenos Aires, 1943.

gard to certain features of the operation itself.

In abdominal surgery, diagnosis should be certain.

The incision chosen should be the one best suited to the field of action. It should disturb muscles and nerves as little as possible and be neither too long nor so small as to make a simple intervention difficult.

Gentle manœuvers in surgical intervention reduce operative trauma.

Gutierrez disregards the appellations major and minor surgery, for the simple reason that in minor surgery major complications may arise. For this reason he protests against the performance of any operation in the surgeon's office.

Too great surgical speed and overconfidence are to be condemned as causing errors and sacrifice of correct technic. Performing the operation well should be the surgeon's goal; he should be correct, rapid, and do a complete job.

Knowing whether or not to operate and when to operate is vital to the surgeon's success. He should be guided by clinical criteria. If there is any doubt, a consultant should be called in. The good surgeon does not abuse "exploratory laparotomy."

Specialization in some particular branch of surgery is well and good—only, general surgery should be practiced first. Surgery has been greatly benefited by specialization, particularly thoracic and neurologic surgery, in which great strides have been made recently.

Wide general culture is an asset. Languages are the key to publications of scientific discoveries in other countries. Philosophy, logic, psychology, sketching and painting are estimable cultural armamentaria.

In conclusion, Gutierrez weighs the sorrows and joys of the surgeon, recounting the satisfaction he experiences at the saving of a life.

M T.

Ribbon Gut in Surgery

THE efforts of the surgeon, however skilfully exerted, may encounter a serious hazard through the tearing of tissues by suture material, especially when the tissues are fragile and nonresistant. An interesting survey of the use of ribbon gut in the past ten years at the New York Hospital to overcome this hazard is presented by O. S. Lowsley,* who pioneered in the use of this material on the suggestion of W. P. Didush, the noted surgical artist.

According to Lowsley, ribbon gut not only eliminates the danger of cutting through the tissues, but in addition has the unusual property of permitting fibroblasts to grow between its fibers, so that as the gut is absorbed, the fibroblasts replace it completely. This was demonstrated by microscopic studies. Gut being an animal membrane, hundreds of specimens show that fibroblasts never fail to replace the ribbon gut—which *per se* is an important surgical development.

Ribbon gut has been used at the New York Hospital and elsewhere on a wide variety of organs with most satisfactory results. In kidney wounds, both surgical and traumatic, in which it was first employed, ribbon gut finds its most logical and effective field, owing to the nature of the renal substance. Lowsley reports 208 nephrostomies performed by the ribbon gut and fat method with only 2 cases of

*Surg., Gynec. & Obstet. 77:91, July, 1943.

bleeding, no complications whatever and prompt wound healing. The method also has been used successfully in horseshoe and double kidney, ruptured and tuberculous kidneys. In the ligation of the renal pedicle after nephrectomy, ordinary suture material often cuts through the diseased vessels. In none of Lowsley's cases did the ribbon gut ligature cut through. He warns, however, that caution is necessary to insure that the knot is tied tightly so it will not slip off. He adds that a sizable rosette of tissue distal to the location of the ligature will help to keep the vessels intact.

Ribbon gut has been used in total perineal prostatectomy with excellent results and also for the operation devised by Lowsley for the relief of certain types of sexual impotence. In the latter, the dorsal veins of the penis are compressed by a ribbon gut suture and the ischiocavernosus muscles and the bulbocavernosus are plicated. The author states that the success of the operation apparently depends on the use of chromic ribbon gut which does not tear through the delicate muscles, as ordinary twisted catgut does.

Repair of hernias, plication for the relief of urinary and fecal incontinence in the male, various gynecologic conditions, rupture of the liver and spleen and ligation of a bronchus in lobectomy—all have been successfully accomplished by this method.

Undoubtedly the introduction of ribbon gut has been an important step forward in surgery. It is said to have manifold advantages over human fascia lata and preserved ox fascia lata, and possesses a high safety factor of sterilization by heat. In various types of operations coming under the author's personal observation no material thus far encountered has surpassed or even equalled ribbon gut in efficiency and safety.

A. L. Wolbarst

IN MEMORIAM

IRVIN ARTHUR WEICHBRODT, M.D., F.I.C.S.; F.A.C.S.

The officers and members of the International College of Surgeons extend their condolences to the bereaved family of Dr. Irvin Arthur Weichbrodt, whose death occurred on May 4 in Seattle, Washington. He was born in Seward, Nebraska in 1880. He was graduated in medicine from St. Louis University in 1904. He served his internship in Josephine Hospital, pursuing his postgraduate studies at the New York Post Graduate Hospital and on the European continent, particularly in Vienna. Dr. Weichbrodt was a member of the Consulting Staff of King County Hospital, the Visiting Staff of Swedish Hospital and the Chief of Staff of Providence Hospital. He was attached to Seattle College as Lecturer in Gynecology and to the Civil Aeronautics Administration at Washington, D. C. as Medical Examiner. His affiliations included the American Medical Association, American College of Surgeons, Academy of Surgery, Washington State Medical Society and King County Medical Society. Dr. Weichbrodt won wide recognition throughout the Northwest as a diagnostician and surgeon. He was beloved by his patients and admired by his host of friends for his breadth of culture and depth of spiritual insight. The community and the College mourn his loss.

CHAPTER NEWS

BOLIVIAN CHAPTER

IT is with regret that we have learned of the illness of Dr. Enrique St. Loup B., President of the Bolivian Chapter of the International College of Surgeons, under whose leadership the chapter was formed. We hope that he will soon be restored to health.

CHINESE CHAPTER

THE organization work of the Chinese Chapter is progressing. Dr. J. Heng Liu, member of the Board of Trustees of the International College of Surgeons, is keeping chapter members informed of our activities by sending the *Journal* to China in microfilm form.

HONDURAN CHAPTER

DR. Henry D. Guilbert, Secretary of the Honduran Chapter of the International College of Surgeons, has notified the Central Office that the Honduran Chapter holds monthly meetings, at which time the members present papers followed by discussions.

HAITIAN CHAPTER

DR. C. VALMÉ, Secretary of the Haitian Chapter, announces that it held its annual meeting on Mar. 27-28. The transactions of the meeting will be published in the *Journal* at a later date.

Dr. Louis Roy, F.I.C.S., of the *Faculté de Médecine* of Haiti, has spent several weeks in the United States visiting clinics and sanatoria. He is Professor of Phthisiology at his *alma mater* and a member of the *Service d'Hygiène* of Haiti and Chairman of the Anti-Tuberculosis League, whose program is threefold: (1) To construct sanatoria and dispensaries; (2) to give postgraduate training in this field to physicians and nurses; (3) to disseminate knowledge of prevention of tuberculosis and care of tuberculous patients among the common people.

Dr. Louis Roy

First tuberculosis sanatorium in Haiti

Dr. Roy is responsible for the construction of the first tuberculosis sanatorium in Haiti, erected from funds publicly subscribed to the Anti-Tuberculosis League. The importance of the task of wiping out this disease in Haiti, undertaken by Dr. Roy, may be realized when we remember that in Haiti, where a large percentage of the population is poor, tuberculosis is the leading cause of death.

MEXICAN CHAPTER

MEXICAN UNIVERSITY MISSION FETED IN CUBA

AT the invitation of the Faculty of Medicine of the University of Havana, Drs. Manuel A. Manzanilla, F.I.C.S. (Hon.), International Vice-President of the International College of Surgeons, and Francisco Fonseca García, F.I.C.S. (Hon.), National Secretary of the Mexican Chapter of the College, of the Faculty of Medicine of the National University of Mexico, were cordially entertained. The object of the mission was the furthering of cultural rapprochement and university exchange between the National University of Mexico and the University of Havana.

The Mexican delegation was received by the University of Havana dignitaries in a special session where it presented a message from the sister National University of Mexico. The meeting was presided over by University Rector, Dr. Rodolfo Méndez Peñate, Vice-Rector, Dr. Roberto Agramonte, and the other deans of the university faculty. The Faculty of Medicine also met in special session, presided over by the Dean, Dr. Angel Vieta Barahona, to greet the Mexican colleagues, which initiated and presented various scientific lectures.

Dr. Esteban Paulín, F.I.C.S., Territorial Regent of the Mexican Chapter of the International College of Surgeons, who accompanied the Mexican delegation to Havana to fulfil a cultural mission from the government of the State of Querétaro, representative of the Civil College, at present incorporated in the National University of Mexico, participated in all university activities.

The Mexican university delegates presented to the University of Havana in special session a fraternal message from the National University of Mexico, directed by the Rector, Dr. Rudulfo Brito Foucher, as well as personal messages from the Mexican university deans to their Cuban colleagues, the first being that of Dr. Gustavo Argil, F.I.C.S. (H.C.), Director of the Faculty of Medicine of the University of Mexico. The Rector, Méndez Peñate, delivered the address of welcome in the name of the Vice-Rector and the various deans. He spoke glowingly of the importance of the mission.

At the Faculty of Medicine, Dr. Ernesto R. de Aragón, one of the distinguished faculty members, introduced his Mexican colleagues as follows:

"The Faculty opens its doors and regales itself in festal attire to receive with open arms

Delegation of the National Mexican University amid reception committee of Cuban Surgeons

the messengers of the 400-year old University of Mexico, who on a noble mission of fellowship bring us invaluable scientific knowledge and a prodigious wealth of experience.

"Universities cannot limit their activities to purely scientific functions, which through their individual disciplines lead to the so-called liberal arts careers, nor, as the experience of the University of Havana shows, dedicate itself fully to research work with the aim of high scientific specialization. The universities today represent an advance in ideological movements; they are and ought to be an orienting factor, which, while pointing out cultural paths, fix and determine the trajectory of peoples.

"It is for this reason that the visit of the Mexican professors has a major importance and a more transcendental purpose than that of a simple visit of courtesy or one of cultural approach, and if, with this same ideology, the visit which in 1941 we made to the sister university with a worthy representation of our alma mater had had no other result than the motivation for this outstanding representation of the Mexican University, we should feel amply repaid for our effort.

"Rapprochement, understanding and acquaintanceship among men of science, brings peoples together more rapidly and efficiently than the most painstaking and subtle functions of professional diplomats. But when we find scientific endeavor entwined with character, personal attraction, and when the mission to be fulfilled is felt so sincerely, the result is so much the greater. Such is, professors, the position of this brilliant embassy which our sister university, the National University of Mexico, sends us."

Dr. de Aragón then recited in glowing terms biographical data on Profs. Manzanilla and Fonseca García, and referred also to Dr. Paulín, "who although at this moment neither a professor nor official representative of the National University of Mexico, comes to us as an outstanding leader in his profession. We welcome them," he concluded, "not only for their own intrinsic merits, but because they are *Mexican* professors."

Later the Mexican delegates were received by the Academy of Medical, Physical and Natural Sciences of Havana in a special session presided over by the President, Prof. José A. Presno Bastiony; by the Society of Surgery, in a special session presided over by the

President, Prof. Alberto Inclán, F.I.C.S. (Hon.); by the National Association of University Professors, in a special session presided over by the President, Prof. Angel Pérez André; etc. Finally the Faculty of Medicine tendered a reception of welcome at the National Hotel, and the University of Havana and Medical Association of Cuba, under the presidency of Prof. Alberto Banet, F.I.C.S., gave a farewell banquet in their honor at the Union Club.

DR. BARAHONA OF THE UNIVERSITY OF CUBA VISITS MEXICO

IN connection with the university exchange between the National University of Mexico and the University of Havana, Dr. Angel Vieta Barahona, Dean of the Faculty of Medicine of the University of Havana visited the National University of Mexico. This distinguished colleague was received by the Faculty of Medicine of the National University of Mexico, after a reception by the Rector. Special sessions were called in his honor by the Mexican Academy of Surgery and the National Academy of Medicine. Dr. Barahona visited numerous scientific institutions and Mexican hospitals.

PERUVIAN CHAPTER

THE *Journal* announces with pleasure that Prof. Francisco Graña, First Vice-President of the International College of Surgeons, has notified the central office of the College that through the presentations of the Minister of Health of Peru the Peruvian President has approved a grant of $1000 to be used toward publication of the *Proceedings* of the Fourth International Assembly of the International College of Surgeons, held in New York, June 14-16, 1944.

Dr. Graña writes: "I am very pleased to have been able to obtain this contribution for College work, and at the same time I am exerting every possible effort toward the progress of the Peruvian Chapter.

UNITED STATES CHAPTER

MARKED progress is being noted in the various Committee activities connected with the forthcoming Ninth Annual Assembly of the United States Chapter of the International College of Surgeons, which will be held in Philadelphia, Oct. 3-5, 1944, at the Benjamin Franklin Hotel, under the general chairmanship of Dr. J. Rudolph Jaeger.

The chairman of the Program Committee, Dr. William Bates, reports that every effort is being made to make this assembly an especially educational and inspirational one.

It is urged that those desiring to have exhibits at the assembly communicate immediately with Dr. John Moore, Chairman of the Exhibit Committee, in order to assure that space will be reserved for them.

BOOK REVIEWS

White Blood Cells Differential Tables. T. R. Waugh. 126 pp. D. Appleton-Century Co., New York, 1943.

UNDER certain circumstances a simple blood count is not sufficient for the attending physician. In the ordinary course of events the differential count is given in percentages which may be misleading, especially in diseases in which relative increases or decreases occur in the minor members of the leukocytic series. Since our laboratory diagnostic services are continually striving for greater accuracy, it devolves upon the technician to interpolate the percentages into actual numbers, which is often a time-consuming and an error-introducing procedure. This little book by Dr. Waugh is simply a group of tables which allows this interpolation to be done quickly and accurately. It serves this purpose very admirably and is to be recommended as part of the library of every clinical laboratory.

I. Neiman

Surgery of Modern Warfare. In six parts. Edited by Hamilton Bailey. Part III, pp. 329-506, 312 illus.; Part IV, pp. 507-716, 244 illus. E. S. Livingstone, Edinburgh, 1944. (*For review of Parts I and II, see the Mar.-Apr., 1944, issue.*)

PART III

PART III of this excellent work edited by Hamilton Bailey contains sections on Wounds of Blood Vessels, Methods of Immobilizing the Limbs, and Amputations. Blood-vessel wounds are depicted outstandingly by the use of three-color illustrations. A description of tourniquets and their application is accompanied by the appropriate illustration. It is pointed out that in surgery of vascular injuries of war, standard operative exposures of the classroom are dangerous and inadequate because missiles do not inflict their damage conveniently at "seats of election." In repairing arterial wounds, blood flow should be maintained where practicable. The use of heparin in vascular surgery to prevent thrombosis is discussed. The plaster technic in immobilizing the limbs, use of Thomas's splint and frames, Braun's splint and Cramer wire are thoroughly described. Too high amputations are warned against.

PART IV

Part IV, which treats of Wounds of Bones and Joints, Wounds of the Head and Foot, Wounds of Tendons and Peripheral Nerve Injuries, Wounds and Injuries of the Spine and Wounds of the Head and Neck, contains a description of sequestrectomy and the methods of obliterating bone cavities. Excellent descriptions of surgical anatomy of joints of the upper extremities, the ankle and tarsal joints precede the treatment and management of wounds of these parts. A special chapter is devoted to infected wounds of the hand. New principles of tendon suture are described. Operative treatment of war injuries of the spine and cord is introduced by the pathology and clinical picture. One chapter is given over to management of the bladder in spinal injuries. An interesting description of the operative technic in wounds of the great vessels of the neck. The subeditorship for medicine is admirably conducted by Mr. C. Allen Birch. The seventy-seven contributors to the work have added a brilliant array of practical teachings. They represent the various specialties. The profusion of illustrations, the convenient format and exceptionally fine printing, paper and binding contribute to round out a work which is welcome, well-presented and replete with information. It is warmly recommended. A brief but practical bibliography is found at the end of each chapter.

M. T.

Textbook of General Surgery. Warren H. Cole, M.D., F.A.C.S., Prof. and Head of the Dept. of Surgery, University of Illinois College of Medicine and Robert Elman, M.D., Associate Prof. of Clinical Surgery, Washington University School of Medicine. Ed. 4. 1118 pp., 559 figs. D. Appleton-Century Co., New York, 1944.

THE Fourth Edition of this comprehensive textbook on general surgery has been brought up to date by the inclusion of a chapter on War and Catastrophic Surgery. Significant surgical advances are noted and additions have been made throughout the text to augment data previously presented on fluid and electrolyte balance, amino acid therapy, hypoproteinemia, transfusions, chemotherapy and appendicitis. The chapter on war wounds contains a brief discussion of preoperative factors, anesthesia, operative treatment, convalescent care, thermal burns, simple fractures, compound fractures, amputations, as well as abdominal, cranial, craniocerebral, spinal cord, peripheral nerve and maxillo-facial injuries. Crush syndrome, blast injuries, war gases and war lesions of the feet are adequately set forth. One might wish, however, that this chapter had contained at least a few illustrations.

All in all, this edition, as its predecessors, is brimful of information and up-to-date material. It is unreservedly recommended to students and surgeons alike.

M. T.

Vascular Responses in the Extremities of Man in Health and Disease. David I. Abramson, M.D., F.A.C.P. 412 pp., 59 figs. $5. University of Chicago Press, Chicago, 1944.

THIS comprehensive survey of peripheral vascular disease is introduced by an excellent section on the general anatomy and physiology of the peripheral blood vessels. Technics for study of peripheral circulation, responses of peripheral blood vessels to physiologic and pharmacologic agents, blood flow in abnormal states and in systemic diseases, diseases of arteries and arterioles and the veins, and evaluation of methods used in treating peripheral vascular disease are the subjects treated in this pioneer work. Experiments were performed on human, rather than animal, subjects. Therefore, conclusions

reached are especially valuable. Extensive bibliographies make this a valuable reference work, which should be brought to the attention of physiologists, internists, surgeons, dermatologists, physiotherapists and pharmacologists alike.

M. T.

Arthroplastia del Codo. Oscar Busto. 134 pp., 39 figs. Sebastian de Amorrortu e Hijos, Buenos Aires, 1943.

THIS compact, instructive volume on *Arthroplasty of the Elbow* is thorough and readable. Three chapters on the nature, etiopathology and diagnosis of ankylosis introduce the theme. After carefully defining and giving the history of arthroplasty, the author has stated his belief that animal experiments have been of little use in this field, since conditions analogous to those of humans cannot be created. The mechanism of the formation of nearthrosis is described. Indications and contraindications for the operation are given at length, functional position and the condition of the patient playing an important rôle. Preoperative care and anesthesia are discussed, general anesthesia being recommended except in cases of tuberculous ankylosis, where local anesthesia is administered by the technic of Finochietto. Routes of access, operative technics and postoperative care are treated in detail. A well-illustrated chapter on clinical observations concludes the text, which is accompanied by a copious bibliography, conveniently divided into Argentinian and foreign references. A large format and clear type make the book easy to read. It is well worth the attention of the surgeon who reads Spanish.

M. T.

Pathology and Therapy of Rheumatic Fever. Leopold Lichtwitz, M.D., lately Chief of the Medical Division of the Montefiore Hospital, and Clinical Professor of Medicine, Columbia University. 211 pp., 69 figs. $4.75. Grune & Stratton, New York, 1944.

IN this interesting work by the late Prof. Leopold Lichtwitz, the multiple clinical features of rheumatic fever are presented as a manifestation of allergy. The similarity of rheumatic fever to serum sickness is stressed. The subject matter is well organized, the illustrations and microphotographs interesting, and bibliography adequate. The chapter on treatment discusses the various therapeutic agents in use.

Herbert Sachs

Minor Surgery. Frederick Christopher, Associate Professor of Surgery at Northwestern University Medical School. Ed. 5. 1006 pp., 575 illus. $10. W. B. Saunders Co., Philadelphia, 1944.

THE fact that the book appears in its fifth edition bespeaks its popularity and warm reception by the profession.

The opening aphorism of Maisonnet quoted by the author is pertinent: *"C'est par l'étude de la petite chirurgie que le chirurgien commence son apprentissage."* Of course, one cannot speak of "small surgery" or "minor surgery" without qualifying the statement. Surgery is neither small nor minor. Small errors beget big consequences. This reviewer believes that, strictly speaking, there is no such thing as minor surgery. It has been justly remarked by a visiting English surgeon that there are "minor surgeons," but never minor surgery. Yet the simpler forms of surgery are stepping stones to greater achievements and are indispensable to the beginner. The author is to be commended on the statement that all minor surgery is potentially major surgery, a distinction between the two often being impossible. With this premise before us, would it not be advantageous to change the term "minor surgery" to some such designation as "the simpler forms of surgery"? For undoubtedly the former often lulls the inexperienced into a perilous sense of false security, and on occasion he finds himself rudely awakened by heartaches and disappointments to the patient. The man in general practice, who of necessity is frequently called upon to take care of a variety of surgical conditions, will find in this volume a great deal of information. In fact, this reviewer recommends this opus to every general practitioner because of its outstanding practical value and because he believes that no man has a right to practice medicine who is incompetent when confronted with problems requiring prompt surgical attention. Of course, one could pick out throughout the many pages of the book lesser points here and there wherein the writer differs, but such should never detract from the main value of a sincere effort. Such entities as the removal of foreign bodies, treatment of wounds and burns, injuries, infections, fractures and dislocations are all matters which concern the general practitioner, and in the chapters dealing with these he will find the greatest usefulness. Chapter 25 on the Surgical Intern is a happy inclusion in the work. The hospital resident will often refer with profit to this chapter and to the one on pre- and postoperative care. The work is well and profusely illustrated. The bibliography interspersed throughout the text is a distinct advantage, and the index augments the value of the work.

Max Thorek

Sulfonamide Therapy in Medical Practice. Frederick G. Smith, M.D., Editor of *Philadelphia Medicine* and the *Medical World.* 368 pp. Numerous tables and charts. Philadelphia, F. A. Davis Co., 1944.

SULFA therapy is the most important advance of chemotherapy in the last decade. An enormous literature deals with the application of these drugs, their mode of action, their primary and secondary effects and their limitations. Improved sulfa preparations have been brought out successfully in recent years, requiring studies of their advantages and their toxicity. Every doctor should become familiar with the use of this therapy, supplementing his personal experience with the knowledge of the literature. Thus, the author of this monograph is satisfying an urgent need for a thorough instruction in the practical results of sulfa therapy. Furthermore, the author analyzes and criticizes the current literature in a careful and subtle manner, enabling us to recognize both the indications and dangers in the use of sulfa drugs. Part I of the volume gives general information concerning the sulfonamides, *i.e.*, their pharmacology, dosage, method of application, toxic reactions, and necessity for blood tests and urinalyses. Part II deals with sulfonamide therapy in particular branches of medicine and in special diseases. An appendix contains a report on penicillin, the drug which in the future may supplant sulfa therapy. The author is to be congratulated upon his outstanding, excellent work, which will be of especial value to the medical profession.

Otto Porges